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Cap. 3

UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration
Technical Standards Committees
(Electric)

Supplement No. 3, April 1979, to
REA Bulletin 43-5

LIST OF MATERIALS ACCEPTABLE FOR USE ON
SYSTEMS OF REA ELECTRIFICATION BORROWERS

The attached pages for the "List of Materials Acceptable for Use on Systems of REA Electrification Borrowers" are those which have been revised by action of the Technical Standards Committees during the months of January through March 1979. The following changes should be made in order to keep it up to date. Pages with a colon between are on the same sheet, both being changed.

<u>Add</u>	<u>Remove</u>	<u>Add</u>	<u>Remove</u>
<u>New Page</u>	<u>Page</u>	<u>New Page</u>	<u>Page</u>
iv	iv	eb	eb
b:c	b:c	ei:ej	ei:ej
d:f-1	d:f-1	el(Cond.)	el(Cond.)
f-2:g-1	f-2:g-1	eq(1.1)	eq(1.1)
h	h	fj,fk,fl	fj,fk,fl
i:j	i:j	fm:fn	fm:fn
k-1:k-2	k-1:k-2	fo	fo
k(3)	k(3)	fv	fv
n:o	n:o	gx(3)	gx(3)
q:s	q:s	sd:sd(Cond.)	sd:sd(Cond.)
u-1	u-1	se	se
v	v	U an-1.1	U an-1.1
z-1	z-1	U ax	U ax
z-4:z-5	z-4:z-5	U fz-1	U fz-1
z-7	z-6:z(Cond.)	U gk(2)	U gk(2)
z(Cond.):aa,ab	aa,ab	U go:U gp	U go:U gp
ac:ae-1	ac:ae-1	U gu(1)	U gu(1)
af-1	af-1	U hb(2.1)	U hb(2.1)
ai-1:ai-2	ai-1:ai-2	U hc	U hc
ai-3	ai-3	U he(1)	U he(1)
an-1.1	an-1.1	U he(3)	U he(3)
an(1.1)	an(1.1)	U hp(2)	U hp(2)
ax-1	ax-1	U hq(1)	U hq(1)
bi	bi	U hv(1)	U hv(1)
bu	bu	U hy(1)	U hy(1)
cg-1	cg-1	U ja(1.1)	U ja(1):U ja(2)
cg(2)	cg(2)	U ja(2)	-
cu	cu	U si	U si
dp	dp	GP-6	GP-6
du	du		

D

Deadend clamps.	l
" " with socket eye.	ej
Deadends, compression	cp
" , automatic and formed types.	by
" for steel strand	l
" for guy strand	u
" , secondary	cq
" , service	dt
Disconnect switches, hook operated.	sb
Double arming bolts	n
" " eye bolts	dy
" " plate	ct
" upset bolt	q

E

End links	br
Extension links	du, eu
Eye bolts	o
" " , double arming.	dy
" " , pole top pin	dx
" nuts.	aa
" screw, elliptical	dq

F

Fuses and cutouts	af
Fuses, power, substation.	af
Fuses, current limiting, backup	ag

G

Gains, pole	bi
Ground connectors, transformers	bu
Ground rods	ai
Ground rod clamps	aj
Ground wire clamps.	dp
" " clips	al
" " staples	al
" " supports, overhead.	ed
Grounds, pole	dh
Ground wire, pole	cj
Grounding conductor, substation, coated steel	sr
Guy attachments	v
" clamps.	u
" deadends.	u
" guards.	at

Guy hooks.	bj
" plates	bk
" strain insulators.	w
" wire	y
" " clips	dz
Guying tee	fv
" plate	fu

H

Hangers, capacitor	fd
Hooks, ball.	eh
Hot line clamp	ap

I

Insulated bracket.	da
Insulator adapter.	dd
Insulators, guy strain	w
" , pin type	a
" , post type.	ea
" , spool.	cm
" , suspension	k

K

Keys, pole	z
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L

Lag screws	j
Lightning arresters (surge arresters).	ae
Links, extension	du
Links, extension (fiberglass).	eu
Locknuts.	ek
Loop deadend clamps	bn

M

Machine bolts.	c
Meter protectors	gg
" sockets.	gb
Meters, watthour	ga

b - Pin, pole top, steel

DISTRIBUTION

	<u>7.2/12.5 or 7.62/13.2 kV</u>			<u>14.4/24.9 kV</u>
Pin length, inches:	15	18	20	20
Thread diameter, in.:	1	1	1	1-3/8
Hole spacing, inches:	5	8	8	8
REA Specifications:	D-3	D-3	D-3	DT-3
Chance	2162	C206-0106	2199	2195
Dixie	D2162	D2170	D2172	D2195
Joslyn	J715	J1368	J740	J720
Kortick	K8076	K8079	-	K8086
McGraw-Edison	DP19P2	DP19P4	DP19P6	DP19P5
Utilities Service	36751F	36754F	36606F	36652

Pins listed below have 4½" offset
which eliminates the use of item cs

McGraw-Edison	-	-	-	DP28P1
Utilities Service	-	-	-	36549

TRANSMISSION

Type:	1-1/8" solid steel	Channel
Pin length, inches:	24	24
Thread diameter, in.:	1-3/8	1-3/8
Hole spacing, inches:	8	8
REA Specifications:	None	DT-3
Chance	-	2196
Dixie	D2125	-
Joslyn	-	J824
Kortick	-	K8087
McGraw-Edison	-	DP19P8
Utilities Service	-	36653F

- NOTE 1. Poletop bracket (item eb) and post insulator (item ea) may be substituted for poletop pin (item f) and pin insulator (item a) for both small and large conductor distribution drawings shown in REA Forms 803 and 804 at the option of the owner.
2. Flared type pins may be mounted with either side against the pole.

c
April 1979

c - Bolt, machine

Applicable Specifications: Edison Electric Institute
Specification TDJ-1 1969,
"Specifications for Steel
Bolts and Nuts"

Applicable Sizes : 1/2 inch diameter, 6 through
10 inch length

5/8 inch diameter, 6 through
24 inch length

3/4 inch diameter, 6 through
26 inch length

7/8 inch diameter, 6 through
28 inch length

The following manufacturers have shown compliance with the applicable
specifications for machine bolts:

A. B. Chance Company
Dixie Electrical Manufacturing Company

Hughes Brothers
*Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
*McGraw-Edison

Utilities Service Company



*"Static proof" design available.

d
April 1979

d - Washers
Flat Steel

Size, inches:	2¼ x 2¼	3 x 3	4 x 4	4 x 4	1-3/8 round	1-3/4 round
Thickness, in.:	3/16	¼	3/16	½	12 gauge	10 gauge
Hole Diam., in.:	13/16	13/16	13/16	13/16	9/16	11/16

Chance	6814	6817	6818	6819½	6803	6805
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Dixie	D6814	D6817	D6818	D6819½	D6803	-
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Hughes	SW2¼-70	SW3-70	SW4-70	SW4-70(½)	RW1-3/8-50	-
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Joslyn	J1076	-	J1080	J1473	J1086	-
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Kortick	K1553	K1555	K1557	K1559½	K1524	K1525
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McGraw-Edison	DF2W5	DF2W7	DF2W10	DF2W15	DF1W2	DF1W3
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Utilities Serv.	5485	5487A	5488	5490A	5478	5479
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Size, inches:	2¼ x 2¼	3 x 3	3 x 4	4 x 4	3 round
Thickness, in.:	¼	5/16	7/16	½	3/16
Hole Diam., in:	11/16	11/16	15/16	13/16	13/16
					(spurred)

Barron Bethea (Nodular Iron)	GCW-1A* BB-214	GCW-31*	CRW-4A*	GCW-41*	-
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Bethea/National (Aluminum Alloy)	-	WC-33-5*	WC-34-7*	WC-44-6*	-
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Continental (Nodular Iron)	-	CW-33-5*	CW-34-7*	CW-44-6*	TCSF-30-6
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Flagg (MIF) (Malleable Iron)	P141* P56A	P143*	P120*	P144*	PX159A
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Joslyn (Steel)	-	J114*	-	-	-
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Lapp (Line Ware) (Malleable Iron)	304075* 304089	304078*	304080*	304082*	-
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Power Line Hardware		CSW-33*	CRW-34*	CSW-44*	
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* Curved

f-1
April 1979

f - Pin, crossarm
(With square washer, nut and MF locknut)

DISTRIBUTION

Thread (inches diam.)	1	1-3/8	1	1-3/8
Length above base (in.)	5	7	5	7
Length below base (in.)	5-3/4	7	1-1/2	1-3/4
Shank (inches diam.)	5/8	5/8	5/8	3/4
	Long Shank		Short Shank	
Chance	881	4717	886	-
Dixie	D881	-	-	-
Joslyn	J203*	J647*	J221*	J630*
Kortick	K7104	K7611	K7122	K7631
McGraw-Edison	DP2S1*	DP3T1*	DP2S37*	DP5T22*
Utilities Service	558	3137A	579	3142

Clamp type pin

Thread (inches diam.)	1	1-3/8
Length above base (in.)	5-3/4	7
Chance	14322	14322-1
Dixie	D3322	D3324
Joslyn	J3322	J3324
McGraw-Edison	DP2C1	DP2C11



Washer plate for clamp type pin

These plates are equipped with lugs to prevent slippage of pin along crossarm. They may be used to replace the bottom plate on pins already installed.

Chance	450091
Joslyn	J3322-P
McGraw-Edison	DP9X1

*"Static proof" designs available.

f - Pin, crossarm
(With square washer, nut and locknut)

TRANSMISSION

Thread (inches diameter)	1-3/8	1-3/8
Length above base (inches)	10	10
Length below base (inches)	7	1-3/4
Shank (inches diameter)	3/4	3/4
	<u>Long Shank</u>	<u>Short Shank</u>
Chance	4332	-
Joslyn	J610*	J633*
Kortick	K7643	K7635
McGraw-Edison	DP7T9*	DP5T24*
Utilities Service	3140	3145

* "Static proof" designs available.

g-1
April 1979

g - Crossarms

Applicable Specification: REA Specification DT-5B:PE-16 for
Wood Crossarms (Solid and Laminated), Transmission Timbers and
Pole Keys

Crossarm Manufacturing and Treating

Firms listed below have acceptable facilities for manufacture
and treatment of crossarms or may have their crossarms treated
at any one of the plants listed in sections g or zz.

<u>Company</u>	<u>Plant Location</u>
Alabama Wood Treating Corp.	Mobile, Alabama
American Creosote Works	Jackson, Tennessee
American Crossarm Company	Whitehouse, Florida
American Crossarm & Conduit Co.	Chehalis, Washington (1)
Anthony Forest Products	El Dorado, Arkansas (2) (3)
Brooks Lumber Company	Bellingham, Washington (1)
Conroe Creosoting Co.	Conroe, Texas
Dis-Tran, Inc.	Alexandria, Louisiana
Cascadian Co., Inc.	Eugene, Oregon (3)
Crown Zellerbach	Gulfport, Mississippi
Fordyce Wood Preservers, Inc.	Fordyce, Arkansas
R. G. Haley International Corp.	Bellingham, Washington
Hatheway-Patterson Corp.	Houston, Texas
Hughes Brothers	Seward, Nebraska (1)
International Paper Co.	De Ridder, Louisiana
Joslyn Mfg. & Supply Co.	Portland, Oregon
Koppers Company	Gainesville, Florida
	Salisbury, Maryland
	Morrisville, N. C. (2) (3)
Langdale Company	Valdosta, Georgia
Lockhart Lumber Co.	Lockhart, Alabama
Wm C. Meredith Co.	Atlanta, Georgia
Moss-American, Inc.	Meridian, Mississippi
Neidermeyer-Martin Company	Ridgefield, Washington
(Pacific Wood Treating Corp.)	
Pennington West Coast Sales Co.	Beardstown, Illinois (3)
	Eugene, Oregon (3)
Plantation Wood Products, Inc.	Albany, Georgia
Southern Wood Piedmont Co.	East Point, Georgia
	Spartanburg, South Carolina
Structural Wood Systems	Greenville, Alabama (2) (3)
John C. Taylor Lumber Sales, Inc.	Sheridan, Oregon
Texas Tie & Timber Company	Denison, Texas
(W. J. Smith Wood Preserving Co.)	
Utility Structures Engineering, Inc.	Fresno, California (2) (3)
Weekly Lumber Company	Rockledge, Florida
	Tampa, Florida
Wyckoff Company	Seattle, Washington

- (1) Laminated & Solid Sawn
- (2) Laminated Only
- (3) Crossarm Manufacturing Only
- No Number Indicates Solid Sawn Only

g - Crossarms

Crossarm Treating Only

Firms listed below have acceptable crossarm treating facilities,
but do not manufacture crossarms or treat poles.

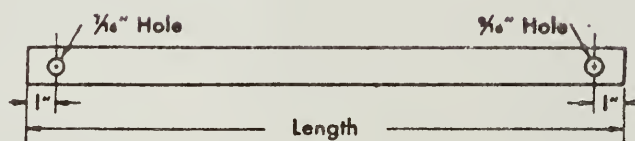
<u>Company</u>	<u>Plant Location</u>
Casswood Treated Products Company	Beardstown, Illinois
Coleman Evans Wood Preserving Company	Whitehouse, Florida

h
April 1979

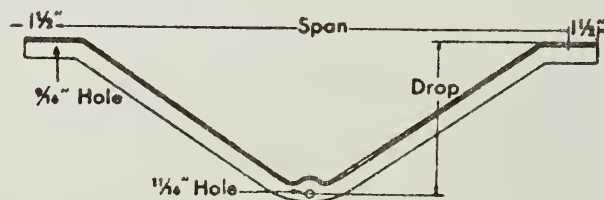
h - Brace, crossarm, steel

Size (inches)	$1\frac{1}{4} \times \frac{1}{4}$	$1\frac{1}{2}$ angle x 3/16
Style	Flat	Bow
Centers (inches)	26	60
Length (inches)	28	-
Drop (inches)	-	18

Chance	7128	6942
Dixie	D7128	D6942
Hughes Brothers	2809.5	-
Joslyn	J7128	J1508
Kortick	K1428	K1815
McGraw-Edison	DB2F5	DBLL5
Utilities Service	5243	5217



Flat Brace



Bow Brace

NOTE: The braces listed on this page may, at the borrower's option, be substituted for wood braces, Item cu, specified on 7.2/12.5 kV drawings. They may not be used for 14.4/24.9 kV construction.

i - Bolt, carriage

Applicable Specifications: Edison Electric Institute
Specification TDJ-1 1969,
"Specifications for Steel
Bolts and Nuts"

Applicable Sizes : 3/8 inch diameter, 3 through
6 inch length
1/2 inch diameter, 3 through
6 inch length

The following manufacturers have shown compliance with the applicable specifications for carriage bolts:

A. B. Chance Company
Dixie Electrical Manufacturing Company
Hughes Brothers
Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
McGraw-Edison Company
Utilities Service Company



j
April 1979

j - Screw, lag

Applicable Specifications: Edison Electric Institute
Specification TDJ-3 1964,
"Standards for Lag Screws"

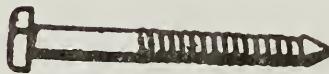
Applicable Sizes : 1/2 inch diameter, 4 inch length
1/2 inch diameter, 5 inch length
5/8 inch diameter, 4 inch length
5/8 inch diameter, 5 inch length

The following manufacturers have shown compliance with the applicable specifications for lag screws:

A. B. Chance Company
Dixie Electrical Manufacturing Company

Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
McGraw-Edison

Utilities Service Company



k - Insulators, suspension

ANSI Class Type	52-9 Clevis	52-1 Clevis	52-4 Clevis	52-3 Ball & Socket
Disc Diameter	4 $\frac{1}{4}$ "	6"	9" or 9 $\frac{1}{2}$ "	9" or 9 $\frac{1}{2}$ "
M & E Rating, lbs.	10,000	10,000	15,000	15,000
Leakage, inches	6-3/4	7	11 $\frac{1}{2}$	11 $\frac{1}{2}$
Flashover; kV: Dry-Wet	60 - 30	60 - 30	80 - 50	80 - 50
NOTES	(3)(4)(6)	(3)(4)	(5)	(2)

Manufacturer

Catalog Number

Chance	C907-1209	C907-1001 (6)	-	-
Joslyn (Pinco)	L1814	L1510	L-970	L-960
Lapp	6815-G70	6605	9100	9000
Locke	16044	16583	15S410	15S409
Ohio Brass	42399	32433	48019	48008
Porcelain Prod. (Knox)	20034	86012	-	-
Sediver	CT-4R2	-	-	-

Notes:

- (2) To be used only on transmission lines.
- (3) To be used only on distribution lines.
- (4) Use two insulators for 7.2/12.5 kV deadends and three insulators for 14.4/24.9 kV deadends.
- (5) Use two insulators for 14.4/24.9 kV deadends.
- (6) Either malleable iron, steel or aluminum hardware is acceptable.

k-2
April 1979

k - Insulators, suspension

ANSI Class Type	52-3 Ball & Socket	52-4 Clevis	52-5 Ball & Socket	52-6 Clevis
Disc Diameter	10"	10"	10"	10"
M & E Rating, lbs.	15,000	15,000	25,000	25,000
Leakage, inches	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11	11
Flashover; kV: Dry-Wet	80 - 50	80 - 50	80 - 50	80 - 50
NOTES	(2)	(1)	(2)	

Manufacturer

Catalog Number

Joslyn (Pinco)	L1060	L1070	L1500	L1570
Lapp	8200	8100	5960G	2300
Locke	20S840	20S580	30S255	30S257
Ohio Brass	32440	32439	47410	47415
Porcelain Prod. (Knox)	81022	81012	-	-

Notes: (1) Use two for 14.4/24.9 kV deadends.
(2) To be used only on transmission lines.



July 1978

k - Insulator, suspension

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Sediver</u>		
10" suspension insulator	997(7/27/72)	To obtain experience.
CT-6R2 (clevis, 15,000 lbs.)	1068(6/26/75)	
N-6R2 (ball & socket, 15,000 lbs.)		
CT-12R (clevis, 25,000 lbs.)	997	
N-12R (ball & socket, 25,000 lbs.)	7/27/72	

Conditional List

k(3)

April 1979

k - Insulator, distribution deadend

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Permalin</u>		
Distribution deadend	1019	For the purpose of gaining operating experience as follows:
RL-15 (15 kV line-to-line)	6/21/73	1. For distribution lines only.
RL-25 (25 kV line-to-line)	1045 7/11/74	2. To be used only in a horizontal position on deadends. Not to be used as vertical suspension insulators.
		3. Recommended maximum working load is 5,000 lbs.
		4. Not recommended for use in areas subject to contamination.
<u>Chance</u>		
Distribution deadend	965	Same as above
Catalog No. C654-0000	4/22/71	
"Epoxilator II"		
(15 kV line-to-line)		
Catalog No. C654-2500	1088	Same as above
"Epoxilator II"	1/22/76	
(25 kV line-to-line)	1129 12/15/77	
<u>Joslyn</u>		
Distribution deadend	1074	For the purpose of gaining operating experience as follows:
UDI 671-3002	9/25/75	1. For distribution lines only, up to 15 kV line-to-line voltage.
	1088	
	4/15/76	
Distribution deadend	1074	For the purpose of gaining operating experience as follows:
UDI 671-3010	9/25/75	1. For distribution lines only, up to 25 kV line-to line voltage.
	1088	
	4/15/76	
<u>Plastigage</u>		
Distribution deadend	1158	To obtain experience.
HTA-S1-15 kV	3/1/79	
HTA-S1-25 kV		

n - Bolt, double arming

Applicable Specifications: Edison Electric Institute
Specification TDJ-1 1969,
"Specifications for Steel
Bolts and Nuts"

Applicable Sizes : 5/8 inch diameter, 12 inch
through 24 inch length

3/4 inch diameter, 20 inch
through 24 inch length

The following manufacturers have shown compliance with the applicable
specifications for double arming bolts:

A. B. Chance Company
Dixie Electrical Manufacturing Company

Hughes Brothers
*Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
*McGraw-Edison

Utilities Service Company



*"Static proof" designs available.

o
April 1979

o - Bolt, eye, oval

Applicable Specification: Edison Electrical Institute
Specification TD-4 1958,
"Specifications for Eye Bolts"

Applicable Sizes : 5/8 inch diameter, 6 inch through
20 inch length

3/4 inch diameter, 8 inch through
20 inch length

The following manufacturers have shown compliance with the applicable specifications for oval eye bolts:

A. B. Chance Company
Dixie Electrical Manufacturing Company

*Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
*McGraw-Edison

Utilities Service Company

* "Static proof" designs available.



Shoulder Eye Bolt
for Transmission Structures

3/4 inch diameter, 8 inch through 20 inch length

Catalog Number

Joslyn
Kortick
McGraw-Edison

J9528 to J9540
K9558 to K2570
DF10E8 thru DF10E20

q
April 1979

q - Bolt, double upset



Applicable Specification: "REA Specifications for Single and Double Upset Spool Bolts," D-5

Diameter, inches	5/8	5/8	5/8	5/8
Length, inches	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
Chance	-	7826	7828	7830
Dixie	D7824	D7826	D7828	D7830
Joslyn	-	J2394	J2395	J2396
Kortick	K4760	K4761	K4762	K4763
McGraw-Edison*	DC3E15	DC3E11	DC3E12	DC3E13
Utilities Service	31065	31067	31069	31071

*"Static proof" designs available.

s
April 1979

s - Clevis, secondary swinging

Applicable Specifications: REA Specifications for Secondary Swinging
Clevises, D-6

<u>Manufacturer</u>	<u>Clevis only*</u>	<u>Clevis with 1-3/4" groove spool</u>	<u>Clevis with 3" groove spool</u>
Chance	0352	0352-C909-1032	0352-C909-1034
Dixie	D0352	-	-
Joslyn	J0322	J0392	J0393
Kortick	K9259	K9109	K9149
McGraw-Edison	DC4S1	DC4S12	DC4213
Utilities Service	32043	36043	32143

*Catalog number does not include spool. See page cm for spool type
insulators.

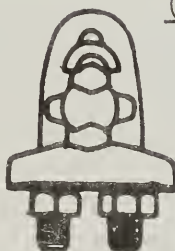
u - Deadend for galvanized steel or
alumoweld guy strand



3-Bolt Guy Clamp

	Light (1/2" bolts)	Heavy (5/8" bolts)*
Chance	6450	6461
Dixie	D6450	D6461
Joslyn	J930	J931
Kortick	K4124	K4005
McGraw-Edison	DG3C2	DG3C3
Util. Service	5273	5275

U-Bolt Guy Clamp



	Light (3/8" bolts)	Heavy (1/2" bolts)
Barron Bethea	GCU-38C	-
Continental	GC-64C	GC-67C
Flagg (MIF)	PAX-64C	PAX-67C

Offset Guy Clamp

	Light (1/2" bolts)	Heavy (5/8" bolts)
Chance	6409	6410
Joslyn	J926	J927
McGraw-Edison	DG5C1	DG5C2

*For use on transmission.

u-2
October 1978

u - Deadend for galvanized steel guy strand

Strand Size: 1/4" 3/8" 7/16"

Automatic

Reliable

Bail for thimble eye	5100	5102	5103
Bail for guy insulator	5150	5152	5153



Formed Type

Chance

For standard guy	1/4 GSBG	3/8 GSBG	7/16 GSBG
For wrapped guy	1/4 GSC	3/8 GSC	7/16 GSC

Helical Line Products

For standard guy	HG-207- $\frac{1}{4}$ "	HG-210-3/8"	HG-211-7/16"
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Preformed Line Products

For standard guy	GDE-1104	GDE-1107	GDE-1108
For wrapped guy	WGL-2100	WGL-2103	WGL-2104



u-3
October 1978

u - Deadend for alumoweld guy strand

Strand Size	7#12(6M)	7#11(8M)	7#10(10M)	7#9(12.5M)
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Formed Type
Alumoweld Guy Strand

Chance

For standard guy	6M-AWSBG	8M-AWSBG	10M-AWSBG	12.5M-AWSBG
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Helical Line Prod.

For standard guy	HG517-6M	HG519-8M	HG521-10M	HG523-12.5M
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Preformed Line Prod.

For standard guy	AWDE-4110	AWDE-4116	AWDE-4119
For wrapped guy	WGL-4110	WGL-4116	WGL-4120

Automatic
Alumoweld Guy Strand

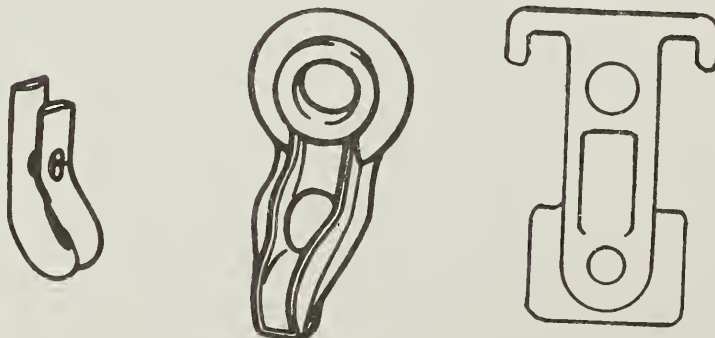
Reliable

5200	5201	5202
------	------	------

v
April 1979

v - Guy attachment
for 5/8" bolt

<u>Type:</u>	<u>Formed Strap</u>	<u>Angle Bolt Eye</u>	<u>Guy Hook</u>	<u>Pole Eye Plate</u>
<u>Maximum Working Load Rating</u>	<u>23,130 N (5200 lbs.)</u>	<u>23, 130 N (5200 lbs.)</u>	<u>23,130 N (5200 lbs.)</u>	<u>37,800 N (8500 lbs.)</u>
Anderson Elec./ Square D	-	-	-	GSP-05
Barron Bethea	-	-	GH-5*	-
Bethea/National	-	-	AG-5*	PE5-6A
Chance	5004	0100	C203-0168*	-
Continental Elec.	-	-	GA-54*	PEP-66-45
Dixie	D5004	D0100	DD-9460, DD9462*	-
Flagg (MIF)	-	-	P135A, P157X*	PX88
Joslyn	J25164	J6500	J6555, J6556	-
Kortick	K4035, K4047	K3140	-	-
Lapp (Line Ware)	-	-	304014*	304021
McGraw-Edison	DG6H1	DG11E1	DG14H1*	-
Power Line Hardware	-	-	GA-58C*	-
Util. Service	31030	5531	-	-



*This hook may also be used in place of the wrapped guy arrangement in assemblies E3-2 and E3-3.

y-4
July 1978

y - Steel Strand

Aluminum Clad

Aluminum-clad steel strand for overhead
ground wire (Alumoweld)

Applicable Specifications: ASTM B 416
Applicable Sizes : 7 x .106", 7 No. 9 AWG,
7 No. 8 AWG, 7 No. 7 AWG

Copperweld Steel Company

For guy strand (Alumoweld)

Applicable Sizes : 6M(7 No. 12), 8M(7 No. 11), 10M(7 No. 10),
12.5M(7 No. 9)

Copperweld Steel Company

z-1
April 1979

z - Anchors, Expanding and Plate

DISTRIBUTION

Rating - lbs.		6000	8000	10,000	12,000
Min. Area - sq. in.		90	100	120	135
Rod Dia. - inches		5/8	5/8	3/4	3/4
Rod Length - feet		7	7	8	-
	<u>Type</u>				
<u>Chance</u>	8 way Plate	- -	88115 617	88135 -	88135 -
<u>Dixie</u>	4 way Plate	D88100-G -	D88115-G D7502-G	D88135-G -	D88135-G D7504-G
<u>Everstick</u>	3 way 4 way	834 -	836 -	8310 84-3/4	- -
<u>Grip-Tite</u>	8 way	A322086G	A322088G	A322812G	A322812G
<u>Joslyn</u>	8 way Plate	J8100-G -	J8115-G J7502-G	J8135-G J7503-G	J8135-G J7504-G
<u>McGraw-Edison</u>	4 way Plate	DA1E5 DA1P7	DA1E6 DA1P8	DA1E6 DA1P9	DA1E7 DA1P10
<u>Power Line Hardware</u>	8 way	PLHG-1008	PLHG-1158	PLHG-1358	PLHG-1358
<u>South Central</u>	8 way	-	84115AG	84135AG	84135AG
<u>Utilities Service</u>	8 way Plate	C88100-G -	C88115-G C617-G	C88135-G C622-G	C88135-G C822-G

NOTE: Where galvanized anchors are listed, the same anchors ungalvanized (black asphalt coated) are also acceptable.

z - Anchors, Service

Rated Holding Power in Sand - 2500 lb.

	<u>Screw</u>	<u>Expanding</u>
Chance	6346	6870
Dixie	D-6526	-
Grip-Tite	-	322065G
Joslyn	J6526W-CA	J0870-G
McGraw-Edison	DA2N1	-
Power Line Hardware	-	PLHG-70
Utilities Service	C6346-G	PL62-2.5-G

z - Anchors, Swamp

DISTRIBUTION

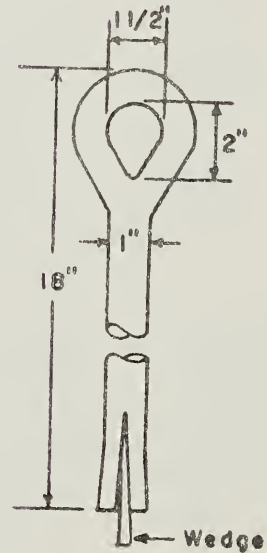
	<u>10" dia.</u>	<u>12" dia.</u>	<u>15" dia.</u>
Chance	10150AS	132AS	152AS
Joslyn	J2871SG	J2872SG	J2873SG
Utilities Service	C10150A-G	C122A-G	C152A-G

NOTE: Where galvanized anchors are listed, the same anchors ungalvanized (black asphalt coated) are also acceptable.

z-5
April 1979

z - Anchors, Rock

	Expanding Rock Anchors			Rock Guy Bolt
Anchor Size - inches	1-3/4	1-3/4	1-3/4	1-3/4
Rod Length - inches	15	30	53	18
Rod Diameter - inches	3/4	3/4	3/4	1
Chance	R315	R330	R353	-
Joslyn	J3436	J3437	J3438	
Kortick	K5503	K5504	K5505	K2377
McGraw-Edison	-	-	-	DALW1
Utilities Service	CR315	CR330	CR353	5003



z - Pole keys

Chance	P-4817
Joslyn	J-4817
Utilities Service	CP-4817

z - Anchors, Power-installed screw

Manufacturer:

A. B. Chance Company
"SS" Multi Helix Anchors

Working Load Categories				
Soil Type	35,600 N (8,000 lb.)	53,400 N (12,000 lb.)	71,000 N (16,000 lb.)	89,000 N (20,000 lb.)
A ₁	12654-AE	12654-AE	12654-AEJ	12654-AEJ
Soil	12654-AEJ	12654-AEJ	12654-EJN	12654-EJN
Class 2	12654-EJN	12654-EJN	12654-EJNS	12654-EJNS
A ₂	12654-AE	12654-AE	12654-AEJ	12654-EJN
Soil	12654-AEJ	12654-AEJ	12654-EJN	12654-EJNS
Class 3	12654-EJN	12654-EJN	12654-EJNS	
B	12654-AE	12654-AEJ	12654-AEJ	12654-EJNS
Soil	12654-AEJ	12654-EJN	12654-EJN	
Classes 4 & 5	12654-EJN		12654-EJNS	
C	12654-AEJ	12654-EJN	12654-EJNS	
Soil	12654-EJN			
Classes 6 & 7				

Manufacturer:

Joslyn
"PS" Screw Anchors

Working Load Categories				
Soil Type	35,600 N (8,000 lb.)	53,400 N (12,000 lb.)	71,000 N (16,000 lb.)	89,000 N (20,000 lb.)
A ₁	J24991ACA	J24991ACA	J25534ACAB	J25534ACAB
Soil	J23381ACA	J23381ACA	J25535ACAB	J25535ACAB
Class 2	J23383ACA	J23383ACA	J25533ACAB	J25533ACAB
A ₂	J24991ACA	J24991ACA	J23381ACA	J23383ACA
Soil	J23381ACA	J23381ACA	J23383ACA	J23384ACA
Class 3	J23383ACA	J23383ACA	J23384ACA	
B	J24991ACA	J23381ACA	J23381ACA	J23384ACA
Soil	J23381ACA	J23383ACA	J23383ACA	
Classes 4 & 5	J23383ACA		J23384ACA	
C	J23381ACA	J23383ACA	J23384ACA	
Soil	J23383ACA			
Classes 6 & 7				

- NOTES: 1. See REA Specification T-10 for definitions and explanations.
2. Anchors in the 53,400 N (12,000 lb.) category or above for use on wood poles must be used with hardware commensurate with the working load. Hardware may provide for either single or multiple guy attachments to the anchor.
3. Anchors listed in a specific working load category and/or soil class may generally be used at lower working load categories and/or lower numerical soil classes.

z-7
April 1979

z - Anchors, Power-installed screw

Manufacturer: Dixie Electrical Manufacturing Company
Multi-Helix Screw Anchors

Working Load Categories				
Soil Type	35,600 N (8,000 lb.)	53,400 N (12,000 lb.)	71,000 N (16,000 lb.)	89,000 N (20,000 lb.)
A ₁	D-6632	D-6632	D-6636	D-6636
Soil	D-6636	D-6636	D-6637	D-6637
Class 2	D-6637	D-6637	D-6638	D-6638
A ₂	D-6632	D-6632	D-6636	D-6637
Soil	D-6636	D-6636	D-6637	D-6638
Class 3	D-6637	D-6637	D-6638	
B	D-6632	D-6636	D-6636	D-6638
Soil	D-6636	D-6637	D-6637	
Classes 4 & 5	D-6637		D-6638	
C	D-6636	D-6637	D-6638	
Soil	D-6637			
Classes 6 & 7				

- NOTES: 1. See REA Specification T-10 for definitions and explanations.
2. Anchors in the 53,400 N (12,00 lb.) category or above for use on wood poles must be used with hardware commensurate with the working load. Hardware may provide for either single or multiple guy attachments to the anchor.
3. Anchors listed in a specific working load category and/or soil class may generally be used at lower working load categories and/or lower numerical soil classes.

April 1979

Z - Anchors


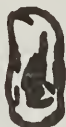
<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Chance</u>		
Screw anchors, power- installed		
11B1 (6,000 & 8,000 lb., 5/8" rod)	692 6/2/60	To obtain experience.
13C1 (10,000 & 12,000 lb., 3/4" rod)		
<u>Dixie</u>		
Screw anchors, power- installed	859 2/9/67	To obtain experience.
D-1162-G (6,000 & 8,000 lb., 5/8" rod)		
D-1375-G (10,000 & 12,000 lb., 3/4" rod)		
<u>Joslyn</u>		
Screw anchors, power- installed	973 8/19/71	To obtain experience.
J11b CA (6,000 & 8,000 lb., 5/8" rod)		
J13C CA (10,000 & 12,000 lb., 3/4" rod)		
<u>McGraw-Edison</u>		
Screw anchors, power- installed	992 5/25/72	To obtain experience.
DA11G621 (6,000 & 8,000 lb., 5/8" rod)		

NOTES: Where galvanized anchors are listed, the same anchors ungalvanized (black asphalt coated) are also acceptable.

Catalog numbers shown are for anchors with 1-3/8" hubs. Equivalent anchors with 1-1/2" hubs are also acceptable. (A special installing wrench is required.)

aa,ab
April 1979

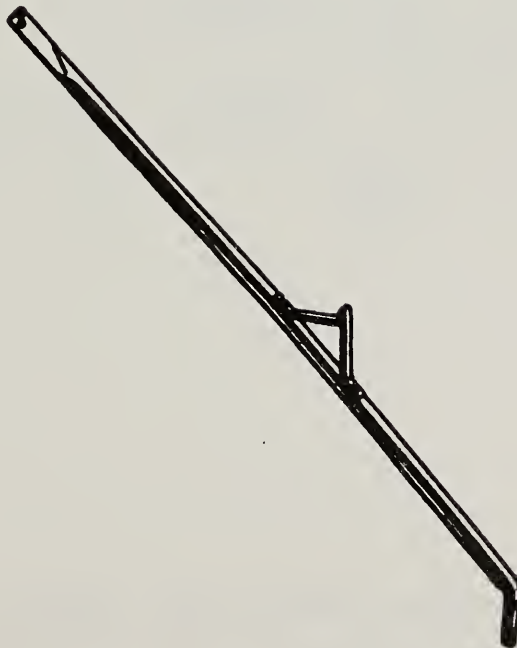
aa - Nut, eye
ab - Nut, thimble eye
5/8 inch

	<u>Eye Nut Conventional</u>	<u>Eye Nut Eyelet</u>	<u>Thimble Eye Nut</u>
			
Barron Bethea	OEN-2A	B-14A	EN-4A
Bethea/National	E-5	B-5	NT-5
Chance	6502	-	6510
Continental Electric	EN-5	BE-5	TN-5
Dixie	D6502	DD-6517	D6510
Flagg (MIF)	P125C	P127A	P128A
Hughes	EN60	-	-
Joslyn	J1092	J1126	J6510
Kortick	K4212	K4413	K3111
Lapp (Line Ware)	304008	304006	304010
McGraw-Edison	DG2E3	DG6E1	DG1E1
Power Line Hardware	PLH-OE-1	PLH-BE-1	-
Utilities Service	450	497	C580

ac
April 1979

ac - Brace, sidearm diagonal

	<u>1-1/2 inch angle</u> <u>3/16" x 5'</u>	<u>1-3/4 inch angle</u> <u>3/16" x 7'</u>
Chance	-	6984
Joslyn	J1521	J1525
Kortick	K1951	K1954
McGraw-Edison	DB1A1	DB1A5
Utilities Service	5210	5212



ae-1
April 1979

ae - Surge Arresters, Distribution
(Lightning arresters)

<u>Manufacturer</u>	<u>Arrester Type</u>	<u>Mount- ing #</u>	Catalog No. of Arrester and Bracket		
			<u>7.2/12.5</u>	<u>7.62/13.2</u>	<u>14.4/24.9</u>
General Electric	Valve	T	9L24BAC	9L24BAD	9L24BAG
		C	9L24BAC	9L24BAD	9L24BAG
Joslyn	Valve	C	J9231-QG	J9231-QG	J9261-QG
		T	J9231-QT	J9231-QT	J9261-QT
Kearney	Valve	C	294012	294013	294016
		T	294042-7	294043-7	294046-7
		RS	294042-7	294043-7	294046-7
McGraw-Edison	Valve	T	AV500M010	AV500M010	AV500M018
		C	AV800M010	AV800M010	AV800M018
Ohio Brass	Valve	C	212203-7622	212203-7622	212206-7722
		R	212203-8006	212203-8006	212206-8007
		T	212203-8004	212203-8004	212206-8051
		RS	212203-8005	212203-8005	212206-8005
RTE	Expulsion	C	32-2686A03	-	32-2686A06
		T	32-2668A03	-	32-2668A06
Westinghouse	Valve	C	Type GLV 367A109A10	Type GLV 367A109A10	Type LVBB 369A104A18

#T - Transformer, C - Crossarm, R - Recloser, RS - Repair Shop

NOTE: Only arresters with top gaps and without ground lead disconnectors are acceptable.

ae - Surge Arresters, Substation*
(Lightning arresters)

<u>Manufacturer</u>	<u>Type</u>	<u>Accepted Ratings - kV</u>	<u>Manufacturer's Classification</u>
General Electric	Alugard	3, 9, 10, 18	Distribution
	Alugard	3-312	Station
	Magne-Valve	3-121	Intermediate
Joslyn	RS	9, 10, 18	Distribution
	Q	3, 9/10, 18	Distribution
Kearney	Unigap	3, 9, 10, 18	Distribution
McGraw-Edison	E7M	3, 9, 10, 18	Distribution
	F2	9-120	Intermediate
	G	3-144	Station
Ohio Brass	GP	3-72	Intermediate
	MPA	3-15	Station
	MP	3-48	Station
	MPR	60-312	Station
	DA	3, 9, 10, 18	Distribution
Westinghouse	LV	3-20	Distribution
	IVL	3-120	Intermediate
	CPL	3-312	Station

* For instructions concerning application at substations refer to REA Bulletin 65-1, "Guide for the Design of Substations for Electric Borrowers." In the purchase of arresters, care should be taken to select the type and voltage rating in accordance with the line voltage and the type of construction (grounded or ungrounded).

af-1
April 1979

af - Cutouts, Distribution, Open

<u>Manufacturer</u>	<u>Type</u>	<u>Voltage Rating</u>
Chance	F3	15, 27 kV
General Electric	9F34	15, 27 kV
Joslyn	Series 2	15, 27 kV
Kearney	HX (with or without loadbreak accessory)	15, 27 kV
McGraw-Edison	S1	15, 27 kV
S & C Electric	XS	15, 27 kV
Southern States	Series 63 Series 70	15, 27 kV 15 kV
Westinghouse	NCX LBU-II	15, 27 kV 15 kV

NOTE: The buyer should specify the load rating, voltage rating, interrupting rating and required accessories.

ai - Rods, ground

Applicable Sizes: The standard size is 5/8 inch x 8 feet and catalog numbers listed below are for this size. Larger sizes may be required for special conditions.

Copper-covered ground rods are listed with a 13 mil minimum at any point and a 15 mil average covering of copper. All purchases should specify that a factory certification of the thickness of the copper must accompany the shipment of the rods.

Copper-covered steel rods

Boggs	EB810
Burndy	858-RGR
Carolina Galvanizing	CR-588
ITT Blackburn	6258
Joslyn	J8338
Kortick	K5428
Knight	858
Power Line Hardware	PLH-588-C
Teledyne (Penn-Union)	GR-588
UTM	858PP
Utilities Service	6617
Weaver	W588
Wilcor	WA588C

Stainless Clad Steel

<u>Manufacturer</u>	<u>5/8"</u>	<u>3/4"</u>
Joslyn	J5374	J5377
Porcelain Products	9438	9448
Teledyne (MEFCO)	"PERMAGROUND"	"PERMAGROUND"

ai-2
April 1979

ai - Rods, ground

Applicable sizes: The standard size is 5/8 inch x 8 feet and catalog numbers listed below are for this length. Longer rods may be required for special conditions.

Hot Dip Galvanized Steel

<u>Manufacturer</u>	<u>5/8"</u>	<u>3/4"</u>
Boggs	G588 PTG588**	G348 PTG348**
Burndy	G588GR	--
Carolina Galvanizing	R588	R688
Chance	8578 C203-0107**	8618 C203-0109**
Dixie	D8578	D8618
Galvan General Electric	GR6258 0982-00002	GR7508 0982-00003
Joslyn	J3358B* J5328 J5228**	J3458B* J5338 J5238**
Knight	G-588 G-588PT**	G-348 G-348PT**
Kortick	K4658	K4678
Lloyd	6258H	7508H
McGraw-Edison	DN5S8 DN8D*	DN6S8 --
Oliver	9318 49368*	9328 49378*
Porcelain Products	7338	7348
Power Line Hardware	PLH-588-G	PLH-348-GS
Utilities Service	5307	6338
Weaver	8480G	8340G
Wilcor	WA8580G	-

Electro-Galvanized Steel

LMP	6258E**	7508E**
-----	---------	---------

Stainless Steel

Joslyn	23821	23822
Teledyne (MEFCO)	TDY Sol	TDY Sol

*Rod furnished with clamp.

**Rod furnished with 4 ft., No. 6 tinned or galvanized copper pigtail.

ai - Rods, ground, sectional

Galvanized steel and
copper-covered steel

Copper-covered ground rods are listed with a 13 mil minimum at any point and a 15 mil average covering of copper. All purchases should specify that a factory certification of the thickness of the copper must accompany the shipment of the rods.

Sectional Ground Rods

<u>Manufacturer</u>	<u>8' long</u>	<u>10' long</u>	<u>Couplings</u>	<u>Driving studs</u>
Blackburn	6258S	6260S	60C	60DS
Carolina Galv.	SR588	SR510	CR58	DS58
Chance Galv. Steel	-	8512	8611	-
Joslyn Galv. Steel	J9158 J23282.8	J9160 J23282.10	J9182 J23282A	J9186 J9186
Knight	S858	S1058	SC58	DS58
Kortick	K5441	K5443	K5482	K5492
McGraw-Edison Galv. Steel	DN17S8	DN16S10	DN1K2	-
Weaver	W-588T	W-5810T	158C	358D

aj
July 1978

aj - Clamp, ground rod

<u>Manufacturer</u>	<u>For 5/8"</u> <u>Copper-</u> <u>covered Rod</u>	<u>For 3/4" Galv.</u> <u>or Stainless</u> <u>Steel Rod</u>	<u>For 5/8" Galv.</u> <u>or Stainless</u> <u>Steel Rod</u>
Anderson	GC-5	-	-
Blackburn	G5	-	-
Boggs	G31	-	-
Burndy	GKP635	-	-
C & R Products	CRGC-58	-	-
Copperweld	ABH58	-	-
Dossert	GNL62H	-	-
*Erico (Cadweld)			
1 ground wire	GR1-161G	GR1-181G	GR1-161G
2 ground wires	GR1-161G	GR1-181G	GR1-161G
Greaves/Mercury	G-580	-	-
IlSCO	GRC-58	-	-
Joslyn	J8392AB	R3459	R3459
Krueger & Hudepohl	808	-	-
Kortick	K4647	-	-
Oliver	76492	-	-
O-Z Elec. Mfg.	BG0304	-	-
Penn-Union	CEB-2	-	-
Reliable	E58	3459	3459
UTM	910-023-03	910-007-02	910-007-02
Weaver	WB5/8	-	-

*Includes disposable molds.

Conditional List
al
July 1978

al - Staples, ground wire

Clip, ground wire

Manufacturer

Meeting No.
and Date

Conditions

Fastex (ITW)
No. 780-2

1038
4/4/74

To obtain experience.

an-1.1
April 1979

an - Transformers, distribution, pole type
Primary Voltages 7.2/12.5, 7.62/13.2 and 14.4/24.9 kV

Applicable Specifications: REA Specifications for Rural Distribution
Transformers, D-10

Listing is by type rather than by catalog number because of the many
possible combinations of voltage, kVA and taps and protective equipment.

<u>7.2/12.5 & 7.62/13.2</u>	<u>14.4/24.9</u>	<u>Dual Voltage</u>
-------------------------------------	------------------	-------------------------

Arkansas Electric Cooperative
Conventional, single bushing

ASE

Central Moloney

Conventional, single bushing

AOD

AOD

AOD

Conventional, two bushing

AOD

AOD

AOD

Self-protected, single bushing

DVP

DVP

DVP

The single bushing transformer may
also be obtained with bushing mounted
cutout and lightning arrester, and
with internal fuse and double gap.

ERMCO

Conventional, single bushing

CONV

CONV

CONV

Conventional, two bushing

CONV

CONV

CONV

Self-protected, single bushing

CSP

CSP

CSP

The single bushing transformer may
also be obtained with double gap and
internal fuse (Type DG) or lightning
arrester and external cutout (Type COLA).

Dead-front for use in enclosure: Add "R" (Radial) or "LF" (Loop feed)
to designation.

an - Transformers, Distribution, Pole Type

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Magnetic Electric</u> 7.2/12.5, 7.62/13.2 and 14.4/24.9 kV	1097 9/9/76	To obtain experience.
Conventional, single bushing Self-protected, single bushing Conventional, two bushing	1104 (12/16/76)	
<u>SESCO</u> 7.2/12.5 kV and 7.62/13.2 kV	1018 6/7/73	To obtain experience.
Conventional, single bushing Type RU Self-protected, single bushing Type ESP Conventional, two bushing Type CONV		
Type RU may also be purchased with internal fuse and/or lightning arrester.		
<u>Dowzer</u> 14.4/24.9 kV and Dual Voltage	824 8/19/65	To obtain experience.
Conventional, single bushing Type CR Self-protected, single bushing Type CSP-R Conventional, two bushing Type CD	1011 3/1/73	

Conditional List
an(1.2)
July 1978

an - Transformers, Distribution, pole type

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Tarrant</u> 7.2/12.5 kV and 7.62/13.2 kV Conventional, single bushing Type CB-1 Conventional, two bushing Type CB-2 Self-protected, single bushing Type SG-1	791 4/30/64	To obtain experience.
May also be obtained with lightning arrester and internal fuse. Types PSG-1 and PSG-2.		
<u>VanTran</u> 14.4/24.9 kV and Dual Voltage Conventional, single bushing Type CR Conventional, two bushing Type CD Self-protected, single bushing Type CSP-R	1075 10/16/75 1095 8/11/76	To obtain experience.

ax - Cutout and Arrester, Combination

Nominal System Voltage Cutout Max. Voltage Rating	For 7.2/12.5 kV Wye		For 7.6/13.2 kV Wye		For 14.4/24.9 kV Wye	
	7.8 kV	15 kV	15 kV	15 kV	18 kV	27 kV
Application						
Cutout Current Rating	1 ϕ Trans. 50*	1 ϕ Sect. 100	3 ϕ Bank 3 ϕ Sect. 100	1 ϕ Trans. 50*	1 ϕ Trans. 50*	3 ϕ Bank 3 ϕ Sect. 1 ϕ Sect. 100
Type						
Manufacturer						
Mounting						
Catalog Numbers						
Chance	C70J-2B3300	C70J-2F2300	C70J-2F2300	C70J-2F2300		
General Electric	9F80	9F80	9F78A	9F80	9F78A	
Joslyn (valve)	J9237-Q6	J9237-Q2/R	J9237-Q6	J9237-Q2/R	J9267-Q6	J9267-Q2
(valve)	J9237-Q2/B	J9237-Q2/B/R	J9238-1Q	J9237-Q2/B/R	J9268-1Q	J9267-Q2/B
(valve)	J9238-1Q					
Kearney	123502	123511	294073	123512	294074	
McGraw-Edison	AF800M010	AFM301B Series	AF800M010	AFM301C Series	AF800M018	AFM300D Series
RTE	32-2661A03				32-2661A06	

*These cutouts have open links and must not be used where fault currents are high or for sectionalizing.

(L) Indicates loadbreak type is available.

ax - Cutout and Arrester, Combination

Nominal System Voltage Cutout Max. Voltage Rating	For 7.2/12.5 kV Wye 7.8 kV	For 7.6/13.2 kV Wye 15 kV	For 14.4/24.9 kV Wye
Application	For 1Ø Transformers & 1Ø Sectionalizing	For 1Ø Trans. & 1Ø Sect.	For 1Ø Trans. & 1Ø Sect.
Cutout Current Rating	100	100	100
Manufacturer Type Mounting	50*	50*	50*
	Catalog Numbers	Catalog Numbers	Catalog Numbers
Westinghouse Crossarm Electric	7.8LDX/ 9 LVG	15 LDX/10 LVG	24.9 LDX/ 18 LVG
Corporation Crossarm (L)	7.8 LBU/ 9 LVG	15 LBU/10 LVG	24.9 LBU/ 18 LVG

*These cutouts have open links and must not be used where fault currents are high or for sectionalizing.
(L) Indicates loadbreak type is available.

bh
July 1978

bh - Clevis, service deadend

Applicable Specification: "REA Specification for Service Deadend
Clevises," D-8

	<u>Clevis Only*</u>	<u>Clevis with dry process spool</u>	<u>Clevis with wet process spool</u>
Chance	0341	0341-0606	0341-C909-1931
Dixie	D0341	D0341-D	D0341-W
Joslyn	J0313	J0314	---
Kortick	K9250	K9100	K9099
McGraw-Edison	DC3F1	---	---
Oliver	4409	4410	4411
Utilities Service	32136	31136	36136

*Catalog number does not include spool; for spool see page "cm."

bi
April 1979

bi - Gain, pole

For use with rectangular crossarms

Chance	4092
Continental	CAG-44-5
Flagg (MIF)	P450-B
Joslyn	J4092
Oliver	1802

For braceless crossarms (narrow profile construction)

Bethea/National	GCAF-6A
Continental	DEA-65-10A
Flagg (MIF)	PX182A
Lapp	304065

Transmission

Grid Gains

	Sizes in inches	
	<u>4" x 4"</u>	<u>4$\frac{1}{2}$" x 9"</u>
Barron Bethea	PG-44	PG-945
Bethea/National	FGSF-44-7	FGSF-95-7
Continental	GGSF-4040-7	GRF-9045-7
Flagg (MIF)	PX122	PX260
Joslyn	J6064	J22533-A
Lapp (Line Ware)	304067	304070

bt
July 1978

bt - Wireholder, clevis type
with No. 2¹/₄ wood screw

(For use with triplex type service cable, Drawing KLOC-A)

Chance	0192*
Dixie	D075*
Joslyn	J075*
McGraw-Edison	DW5R1*
Oliver	4820

*Catalog number does not include insulator. Use secondary type spool insulator with 1-3/4-inch groove diameter. See page cm.

bu
April 1979

bu - Connector, grounding
for transformer or other equipment

<u>Manufacturer</u>	<u>Copper Alloy¹</u>	<u>Plated Copper Alloy²</u>	<u>Aluminum Alloy³</u>
Anderson		GTCL-23A-TP	
ITT Blackburn	TTC-4	TTC2P	
Burndy	EQC632C	EQC632C-TN	
Dossert	TGCL8-50	TGCL8-50-SN	
Fargo	GC-207	GC-207P	GA-220
Penn-Union		GSE-C1TN	
ITT Weaver	TGC-4	TGC-2P	

1 - For use with copper type ground wire.

2 - For use with both copper and aluminum type ground wire.

3 - For use with aluminum type ground wire.

July 1978

bz - Switch, oil

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>McGraw-Edison</u>		
Capacitor oil switch	940	To obtain experience.
Type TSC, 38 kV max.	4/2/70	
100 ampere capacitor switch		
300 ampere load switch		
 Oil switch with	 1046	 1. To obtain experience.
125 kV BIL accessory	7/25/74	
Type NR, 15 kV, single-		2. For use on single-
phase, remote electric		phase taps of
control, 200 amp. at		14.4/24/9 kV multi-
75 to 100 percent power		grounded wye systems.
factor.		

cg - Switch, air, three-pole, group-operated
NEMA standard switches for station and line structures

Manufacturer	Acceptable Mounting on Structure	Titling Ins.		Vertical Break		Side Break		Center Break		Double Break	
		Type	kV	Type	kV	Type	kV	Type	kV	Type	kV
Gould Inc. ITE	Horizontal	3ST	15-34.5	TTR6	15-161						
Johnson	Horizontal			VIP	15-230	LS	15-69	M	15-230		
Joslyn (Hi-Voltage)	Horizontal			RF-2	15-230	RB-1 (VL)	15-25				
	Horizontal					RB-1*	15-115				
Kearney	Horizontal	NE-2	15-34.5	AR	60-P	15-69					
MEMCO	Horizontal	AgF	15-69	EA	15-345						
	Horizontal	AgC	15-69								
H. K. Porter (Delta-Star)	Horizontal			MK-40	15-69	PMB-40A	15-69	LPC	69-230		
Siemens-Allis	Horizontal			TA(VL)	15-345	SSB	15-138	DSB	46-345		
								CBL	115-230		

(L) Means gas or solid material full-load interrupters are accepted and available.

(VL) Means vacuum full-load interrupters are accepted and available.

* These switches may be purchased with reduced voltage vacuum interrupters and may be applied for loop sectionalizing duty when peak recovery voltage does not exceed 25 kV.

NOTE: Vertical phase-over-phase mounted switches are not acceptable above 25 kV class unless equipped with full-load interrupters. Switches of 15 kV and 25 kV classes with individual phases mounted on wood crossarms must be supplied with insulated interphase and control rods.

April 1979

cg - Switch, air, three-pole, group-operated

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>H. K. Porter (cont'd.)</u>		
"Mark 40" 115 kV thru 345 kV (horizontal upright mounting)	1005 12/7/72	To obtain experience.
Type LPV, 3-pole 72.5-272 kV, 1200 amp., 1600 amp., 2000 amp., center sidebreak for horizontal mounting	1064 5/1/75	To obtain experience.
<u>Siemens-Allis</u>		
Type AVB(VL), 115-345 kV (Available in copper, 115- 138 kV, order Type CVB(VL)) (Horizontal upright mounting)	1027(10/11/73) 1154(1/4/79) 1157(2/15/79)	To obtain experience.
Type CBL-T, 15-69 kV 600 and 1200 amp (center break, horizontal upright mounting)	1100 10/21/76	1. To obtain experience. 2. Insulated interphase and control rods required on 15 kV and 25 kV models used on wood structures.
<u>Morgan</u>		
Type VBV (VL), horizontal upright Pole top mtg., 15-34.5 kV H-frame mtg., 46-230 kV Substation mtg., 15-230 kV	1056 1/2/75 1146 8/31/78	1. To obtain experience. 2. Pole mounted switches must be supplied with insulated interphase and control rods. (Same as above.)
Type CVB, center side-break Horizontal pole top mounting, 15-34.5 kV Phase-over-phase mounting, 15-23 kV H-frame and substation mounting, 15-230 kV	1056 1/2/75	
<u>Chance</u>		
Type D2 (L)* side break, 15-34.5 kV, (horizontal and phase- over-phase mountings)	1074 9/25/75	1. To obtain experience. 2. "Duo-Gap" expulsion interrupter required with 34.5 kV switch on phase-over-phase mounting. 3. Not to be used in sub- stations.

(L) Full-load interrupter accepted and available.

* Also available in bronze.

(VL) Means vacuum full load interrupters are accepted and available.

Conditional List
cg(3)
October 1978

cg - Switch, air, three-pole, group-operated

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Joslyn (Hi-Voltage)</u> Type RF-2 (VL), horizontal upright, vertical break, vacuum interrupter type air switch, 15-161 kV	867 5/25/67	To obtain experience.
<u>K-P-F</u> Type A202 (L) horizontal-mounted and Types A202 (L), W202 (L) and MD202 (L) phase-over-phase mounted with quick break loadbreak device.	1137 4/20/78	1. To obtain experience. 2. For 15 kV distribution lines only. 3. Insulated interphase and control rods required.

(L) Means full-load interrupter accepted and available.

(VL) Means vacuum full-load interrupters are accepted and available.

cu
April 1979

cu - Brace, crossarm, wood

Span, inches	60	60
Drop, inches	<u>18</u>	<u>30</u>
Aluma-Form	6018	6030
American Crossarm & Conduit Company	120R	125R
Brooks Lumber Company	34680	34681
Hatheway Patterson	16018	-
Hughes	2000CC	2001-D
Joslyn	J23339	J23623
Dis-Tran	DT-60	DT-601

Braces listed below have 26-inch hole spacing. They are interchangeable with the flat steel braces listed on page h.

Aluma-Form	AF626
American Crossarm & Conduit	600
Brooks Lumber Company	58128
Dis-Tran	DT-28
Hatheway Patterson	7026
Hughes	2023
Joslyn	J5526

Brace, crossarm, fiber reinforced plastic

Joslyn	RP-26
Plastigage	CAB-28
Shakespeare	533

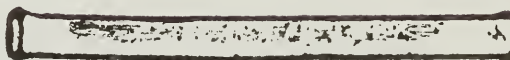
cx
July 1978

cx - Splice, oval tube

<u>Conductor Size:</u>	<u>4</u>	<u>2</u>	<u>ACSR</u>	<u>1/0</u>	<u>2/0</u>
ALCOA	544	542		540	529

<u>Conductor Size:</u>	<u>0 x 7</u>	<u>2 x 3</u>	<u>Copper</u>	<u>4</u>	<u>6</u>
MEMCO	63	62		58	56
National Tel. Supply	464	463		459	457

<u>Conductor Size:</u>	<u>Copperweld-Copper</u>	<u>6A</u>	<u>8A</u>
MEMCO		170	168
National Tel. Supply		460	459



dm
July 1978

dm - Bracket, transformer

(For cluster mounting of two or three transformers on pole)

<u>Manufacturer</u>	<u>Transformer Size, kVA</u>	<u>Band Type</u>	<u>Through Bolt Type</u>
Aluma-Form	3-50	6M3-6	3MW-24
	75-100	15M3-6	12MW-24
Chance	3-25*	215, 315	
	3-50		C212-0142
	37½-50	250, 350	
	75-100	2100, 3100	C212-0146
Dixie	3-25*		D-0565
	37½-50		
	75-100		D-0561-CP
Hughes	3-25*		3021
	37½-50		3020
	75-100		3020 with adapter plates and back plate
Joslyn	3-25*	24352, 24353 with adapter plate	
		24524	J6865
	37½-50	24352, 24353 (two needed)	J6864
	75-100	24352, 24353 (two needed)	J6866
McGraw-Edison	3-25*	DT6C2	DT6C1
	37½-50	DT7C2	DT7C1
	75-100	DT8C2	DT8C1
Oliver	3-50	10300	5280
	75-100	20300	5295
			5291
Turner	3-25*		305-25
	37½-50		305-100
	75-100		305-100

*These brackets will accommodate 25 kVA transformers which are made with a 12-inch spacing between support lugs. Those 25 kVA transformers having a 23¼-inch spacing between lugs will require the bracket listed for 37½-50 kVA.

For mounting of two transformers

Aluma-Form	3-100		DM-4M2
	3-50		DM-2M2
Chance	3-100	C212-0002	C212-0001
Hughes	3-50		3022
McGraw-Edison	3-50		DT16C1
Turner	3-50		205-25

dp
April 1979

dp - Clamp, ground wire

Transmission

For grounding steel towers and substation structures

Bolt Included

(For use with copper ground wires)

<u>Manufacturer</u>	<u>Catalog Number</u>
Penn-Union	GH-30-C-A1
Royal Electric	12202-T (Type LCS)
UTM	910-027-01

For use in: Pole Grounding Assembly TM-9
Capacitor Assemblies M9-11, M9-12 and M9-13

<u>Manufacturer</u>	<u>For 5/8" Bolt</u>	<u>For 3/4" Bolt</u>
Continental	SBL-33	-
Dixie	D-5452	-
Flagg (MIF)	PA-166A	-
Joslyn	J1163	J1164
McGraw-Edison	DG1C5	DG1C6
Oliver	8997	8998

du
April 1979

du - Line, extension

Transmission

<u>Manufacturer</u>	<u>Catalog No.</u>
Gould Inc. (ITE)	3074A
Joslyn (Bolted) (High Strength)	J7712 J22609
Knox	3074A
Locke	43074A
Oliver	1491

Guy Extension Link
(For "H" Structure)

<u>Manufacturer</u>	<u>One Guy Attachment</u>	<u>Two Guy Attachment</u>
Joslyn	J22421	J22523

Distribution

<u>Manufacturer</u>	<u>Catalog No.</u>
Flagg (MIF)	PA320

NOTE: The distribution extension links may be substituted for anchor shackle (Item bo), eye bolt (Item o) and eye nut (Item aa) for both small and large conductor drawings shown in REA Forms 803 and 804 at the option of the owner.

dv
July 1978

dv - Thimble, aluminum

May be used in place of armor tape for ACSR deadends on 3-inch groove diameter spools or thimble clevises.

Manufacturer

Dixie

Catalog No.

D-6647

eb
April 1979

eb - Bracket, Pole Top
For Post Type Insulators

DISTRIBUTION

<u>Barron Bethea</u> (7.2 or 14.4 kV)	1B-4
<u>Bethea/National</u> (7.2 or 14.4 kV)	BPT-58F
<u>Continental</u> (7.2 or 14.4 kV)	PTB-55-8
<u>Flagg (MIF)</u> (7.2 or 14.4 kV)	P531
<u>Joslyn</u> (7.2 or 14.4 kV)	J23333
<u>Lapp (Line Ware)</u> (7.2 or 14.4 kV)	304043
<u>McGraw-Edison</u> (7.2 or 14.4 kV)	DC62B1
<u>Ohio Brass</u> (7.2 or 14.4 kV) (7.2 kV)	84324 89725

TRANSMISSION

Barron Bethea	1B-4
Bethea/National	BPT-58HF
Continental	PTB-66H
Flagg (MIF)	P532
Lapp (Line Ware)	304044
McGraw-Edison	DP29A1
Ohio Brass	84324
Oliver	13961

NOTE: Pole top bracket (Item eb) and post insulator (Item ea) may be substituted for pole top pin (Item f) and pin insulator (Item a) for both small and large conductor distribution drawings shown in REA Forms 803 and 804 at the option of the owner.

ec
July 1978

ec - Bracket, offset neutral

Chance	C206-0004
Dixie	D-2352
Joslyn	J2352
McGraw-Edison	D06N1
Oliver	2761

ei - Clamps, suspension with socket eye

ACSR with Straight or Formed Armor Rods

	AWG		kcmil	
	1/0 & 2/0	3/0	4/0	556.5
				795
				954
	<u>Iron or Steel Clamps</u>			
Anderson	MS-82-S	-	MS-104-S	MS-104-S
Barron Bethea	FGW-4S	-	-	-
Bethea/National	FS-83-S	-	-	-
Gould Inc. (ITE)	6203	6204	6205	6257
Joslyn	6203	6204	6205	6257
(Brewer-Titchener)				
Knox	6203A-U	6204A-U	6205A-U	6257A-U
Lapp	9203	9204	9205	9207A
Locke	46203A-U	46204A-U	46205A-U	46257A-U
Ohio Brass	83085	83105	83115	83125

ACSR with Straight or Formed Armor Rods

	AWG		kcmil	
	1/0 & 2/0	3/0 & 4/0	556.5	954
	<u>Aluminum Alloy Clamps</u>			
Anderson	HAS-85-S	HAS-104-S	HAS-118-S	HAS-139-S
Bethea/National	LS-1-S	LS-2-S	LS-3-S	LS-4-S
C & R	CRSC-1S	CRSC-2S	CRSC-3S	-
Gould Inc. (ITE)	9503-U	9504-U	9505-U	9506-U
Joslyn	9503-S	9504-S	9505-S	9506-S
(Brewer-Titchener)				
Knox	9503-U	9504-U	9505-U	9506-U
Lapp	51453	51456	51459	51465
Ohio Brass	87085	87105	87115	87135
*Preformed	-	AGS	AGS	AGS

*Clevis type available.

ej - Clamps, deadend with socket eye

ACSR

<u>AWG</u>	<u>2/0 to 4/0</u>	<u>266.8</u>	<u>336.4</u>	<u>477</u>	<u>556.5</u>	<u>795</u>	<u>954</u>

kcmil

Iron or Steel Clamps (Require armor tape or liner)

Gould Inc. (ITE)	5001	5002	5002	5003	-	-	-
Joslyn							
(Brewer-Titchener)	5001	5002	5002	5003	-	-	-
Knox	5001	5002-B	5002-B	5003	-	-	-
Lapp	11501	11502	11502	11503	-	-	-
Locke	45001	45002	45002	45003	-	-	-
Ohio Brass	80440	80445	80445	80450	-	-	-

Aluminum Alloy Clamps (Do not require armor tape or liner)

Anderson	SD-57-S	SD-70-S	SD-86-S	SD-98-S	-	-	-
Bethea/National	ADE-21-S	ADE-22-S	ADE-23-S	ADE-24-S	ADE-2526-S	ADE-2526-S	ADE-2526-S
C & R	CR-10-60S	CR-20-60S	CR-20-60S	-	-	-	-
Gould Inc. (ITE)	52001	52011	52021	52031	-	-	-
Joslyn							
(Brewer-Titchener)	5200	5201	5202	5203	-	-	-
Knox	5200	5201	5202	5203	-	-	-
Lapp	51530	51533	51536	51536	-	-	-
Ohio Brass	86536	86540	86546	86546	-	-	-

NOTE: When used with clevis-type insulators for large conductors on distribution lines, order clamp with clevis eye.

April 1979

el - Sectionalizer

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>McGraw-Edison</u>		
Sectionalizer, three phase Type GN3	663 3/12/59	To obtain experience.
Sectionalizer with 125 kV BIL accessory Type GH, 15 kV single phase	1046 7/25/74	1. To obtain experience. 2. For use on single- phase taps of 14.4/24.9 kV multi- grounded wye systems.
*Sectionalizer, three phase Type GN3E 14.4 kV, 200 amp max.	1153 12/21/78	To obtain experience.
*Sectionalizer, three phase Types GV and GVC 14.4 kV, 400 amp max.	1153 12/21/78	To obtain experience.
*Sectionalizer, three phase Types GW and GWC 34.5 kV, 400 amp max.	1153 12/21/78	To obtain experience.
<u>General Electric</u>		
Sectionalizer, single-phase dry-type - 15 kV Model 9F41 with load interrupter only	910 1/23/69 1159 3/15/79	1. To obtain experience. 2. Accepted ratings; 10 through 100 amperes at 15 kV max. line to ground voltage.
<u>Joslyn</u>		
Sectionalizer, three-phase, 15 kV, 400 and 600 amperes Model VBM with VT or RS control	1042 5/30/74	To obtain experience.

*NOTE: Ratings greater than 100 ampere for 7.2/12.5 kV application and greater than 200 ampere for 14.4/24.9 kV application are acceptable only with ground trip device.

em
July 1978

em - Brace, crossarm, special
(angle alley arm)

DISTRIBUTION

15" span, 14" drop; 1½" x 3/16"

Dixie	D17939
Joslyn	J1415
Kortick	K1978
McGraw-Edison	DB4L1
Oliver	5268
Utilities Service	5514

TRANSMISSION

	<u>2'-6" span x 1'-8" drop</u> <u>1-3/4" x 3/16"</u>	<u>3'-6" span x 2'-3" drop</u> <u>1-3/4" x 3/16"</u>
Chance	-	6999
Hughes	AS-2309-B	AS-2309-A
Joslyn	J1430	J1442
Kortick	K1975	K1976
McGraw-Edison	DB4L3	DB4L4
Oliver	5266	5267
Utilities Service	5509	5510

eq - Narrow Profile Brackets and Special Arm Assemblies
(See REA Bulletin 61-12)

METAL BRACKETS

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Flagg (MIF)</u>		
Single post insulator bracket, P542	1032 12/20/73	1. To obtain experience.
Deadend bracket assembly, PAX188A		2. For use only in scenic areas and locations where right-of-way is limited.
Deadend bracket assembly, PAX188M for 14.4/24.9 kV construction	1044 6/27/74	
Standoff bracket, PA619H	1048 8/22/74	3. Not to be used where conductor galloping may be expected.
<u>Joslyn</u>		
Single post insulator brackets 24840.1, for 7.2/12.5 kV construction only	1043 6/13/74	(Same as above)
24840.2, for 14.4/24.9 kV construction		
<u>Chance</u>		
Single post insulator brackets C206-0209 for 7.2/12.5 kV construction only	1049 9/5/74	(Same as above)
C206-0010 for 14.4/24.9 kV construction		
Deadend bracket assembly, C206-0179	1081	
Deadend bracket assembly, C206-0211 for 14.4/24.9 kV construction	1/8/76	
<u>Royston</u>		
Two post insulator bracket RMC-001 for 7.2/12.5 or 14.4/24.9 kV construction	1053 11/14/74	(Same as above)
<u>Continental</u>		
Standoff bracket IACB-18-5 LGE	1065 5/15/75	(Same as above)

Conditional List

eq(1.1)

April 1979

eq - Narrow Profile Brackets and Special Arm Assemblies
(See REA Bulletin 61-12)

METAL BRACKETS

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Lapp</u> Single post insulator bracket, 304031-G	1104 12/16/76	1. To obtain experience. 2. For use <u>only</u> in scenic areas and locations where right-of-way is limited. 3. Not to be used where conductor galloping may be expected.
<u>Western Power Products</u> Single post insulator bracket, HDB-200-R, for 7.2/12.5 kV construction only	1152 12/7/78	Same as above.
<u>Bethea/National</u> Single post insulator bracket, HBF-10-9-GC	1156 2/1/79	Same as above.

fi
July 1978

fi - Connectors, hot line

Over Armor Rods

<u>Manufacturer</u>	<u>Catalog Number or Series (Al to Al)</u>	<u>Catalog Number or Series (Al to Cu)</u>
Blackburn	PGH	-
Fargo	GA-100 Series	GA-100C Series

fj, fk, fl
April 1979

fj - Bracket, extension

(For use in mounting oil circuit reclosers or sectionalizers)
See Drawing VM3-10A

	<u>Through Bolt Type</u>	<u>Band Type</u>
Aluma-Form	TBRSM-1, TB2M1-6*	RSM-1
Joslyn	J2357M	
McGraw-Edison	DR2E3	
Oliver	12256	

*For mounting double lug reclosers.

fk - Bracket, oil circuit recloser or sectionalizer

(For cluster mounting of three oil circuit reclosers on pole)

Aluma-Form	RSM-3
*McGraw-Edison	DT8C1
Turner	695-3

*Suitable for 14.4 and heavy duty 7.2 kV.

fl - Rack, primary metering

(For cluster mounting of primary metering equipment on pole)

Aluma-Form	PMM Series
Turner	3CT-PT

fm
April 1979

fm - Bracket, Arrester and Pothead Extension

For Distribution Arrester and Cutout - Pole Mounting

<u>Manufacturer</u>		<u>Single Phase</u>	<u>Three Phase</u>
Aluma-Form		1HCA-18 Series	R3CA-48
Anderson Elec./ Square D	12.5/7.2 kV 24.9/14.4 kV	COB-E-120-TGL COB-E-180-TGL	
Bethea/National	12.5/7.2 kV 24.9/14.4 kV	VIB3-12F-GC VIB3-18F-GC	
Chance		C653-1038	C653-1056
Continental		IACB-18-5-LGE	
Flagg (MIF)	12.5/7.2 kV 24.9/14.4 kV	PA613H PA619H	
Lapp	12.5/7.2 kV 24.9/14.4 kV	304036-G 304038-G	
McGraw-Edison		DC34B3	
Shakespeare		892-18	670-40

For two distribution arresters in parallel or
one arrester and cutout - crossarm mounted

<u>Manufacturer</u>	<u>Catalog No.</u>
McGraw-Edison	DM23B2

For Intermediate Arrester Mounting

<u>Manufacturer</u>	<u>Single Phase</u>	<u>Three Phase</u>
Aluma-Form	WBMA-1	R3CSA-48

fn
April 1979

fn - Bracket, cutout extension

<u>Manufacturer</u>		<u>Catalog Number</u>
Anderson Elec./ Square D	12.5/7.2 kV 24.9/ 14.4 kV	COB-E-120-TGL COB-E-180-TGL
Bethea/National	12.5/7.2 kV 24.9/14.4 kV	VIB3-12F-GC VIB3-18F-GC
Flagg (MIF)	12.5/7.2 kV 24.9/ 14.4 kV	PA613H PA619H
Lapp	12.5/7.2 kV 24.9/14.4 kV	304036-G 304038-G
McGraw-Edison		DC34B1
Shakespeare		892-18

fo
April 1979

fo - Bracket, Transformer Secondary, Insulated

<u>Manufacturer</u>	<u>Bracket without Insulator</u>	<u>Bracket with 2 1/4" Diameter Spool Insulator</u>	<u>Bracket with 3-1/8" Diameter Spool Insulator</u>
Chance	-	9113S	9114S
Joslyn	-	J6765-A	J6765
Oliver	36056	6057	6056
Utilities Service	865	865/208	865/205

Conditional List

fq
July 1978

fq - Laminated Upswept Arms

Applicable Specification: REA Specification DT-5B
Applicable Drawing : REA Drawing TUS-1

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Joslyn</u> Size: Pole face to center of eyebolt, 48" to 120"	994 6/29/72	1. To obtain experience. 2. For use only in scenic and urban areas where right-of-way is limited.
<u>Koppers</u> Size: Pole face to center of eyebolt, 48" to 132"	994 6/29/72	(Same as above.)
<u>Hughes Brothers</u> Types: C-4080A (5-1/8" width) C-4080B (5-1/8" width) C-4113A (3-1/8" width) C-4113B (3-1/8" width)	1095 8/11/76 1113 4/28/77	(Same as above.)

fu
July 1978

fu - Swinging angle bracket and guying plate

(TRANSMISSION)

Manufacturer

Catalog Number

Joslyn

J22712.3 (bracket and guy plate)
J22714 (plate only)

fv
April 1979

fv - Guying Tee

Transmission

Manufacturer

Catalog No.

Bethea/National

PE6-77A

Continental

EPR-66S-12

Flagg (MIF)

PX37D

Joslyn

J21480-A

Lapp (Line Ware)

304020

gx - Single Pole Steel Structure with Arms

Applicable Specification: REA Specification for Single Pole Steel Structures Complete with Arms, T-9

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>C-E American</u> Single circuit, delta conductor arrangement - Type 1 Single circuit, vertical conductor arrangement - Type 2 Double circuit conductor arrangement - Type 3 Single circuit, large angle arrangement - Type 4	1091 5/27/76	1. To obtain experience. 2. For use only in scenic and urban areas where right-of-way is limited.
<u>Muskogee Iron Works</u> Single circuit, delta conductor arrangement - Type SCD Single circuit, vertical conductor arrangement - Type SCV Double circuit conductor arrangement - Type DC Single circuit, large angle arrangement - Type SCV	1119 7/28/77	1. To obtain experience. 2. For use only in scenic and urban areas where right-of-way is limited.
<u>Power Enterprises, Inc.</u> Single circuit, delta conductor arrangement - Type 1 Single circuit, vertical conductor arrangement - Type 2 Double circuit conductor arrangement - Type 3 Single circuit, large angle arrangement - Type 4	1127 11/17/77	1. To obtain experience. 2. For use only in scenic and urban areas where right-of-way is limited.

Conditional List

gx(3)

April 1979

gx - Single Pole steel Structures with Arms

Applicable Specification: REA Specification for Single Pole Steel Structures Complete with Arms, T-9

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Valmont Industries, Inc.</u>		
Single circuit delta conductor arrangement S/C-DC	1138 5/4/78	1. To obtain experience.
Single circuit, vertical conductor arrangement S/C-VC		2. For use only in scenic areas where right-of-way is limited.
Double circuit conductor arrangement D/C-SC		
Single circuit, large angle arrangement S/C-L/A		
 <u>Anchor Metals</u>		
Single circuit delta conductor arrangement - TUS-1	1155 1/18/79	1. To obtain experience.
Single circuit, vertical conductor arrangement - TUS-2		2. For use only in scenic areas where right-of-way is limited.
Double circuit conductor arrangement - TUS-3		
Single circuit, large angle arrangement - TUS-4		

sd
April 1979

sd - Current Transformers
Outdoor Types

<u>Manufacturer</u>	<u>.6 kV</u>	<u>15 kV</u>	<u>25 kV</u>	<u>34.5 kV</u>	<u>69 kV</u>
Associated Engineering	JB JBX WEO	BB-15 LG-15	BB-25 LG-25	LG-34.5	
Astra	AA TFW AB AD				
Duncan	DCBW DCCW DCAB				
General Electric	JCR-O JCW-O JAK-O JAD-O	JKW-5	JKW-6 JKW-150 KG-150	JKW-200 KG-200	JKW-350 KG-350
Sangamo	B6 Type	SMC-150			
Westinghouse	CSB-10 CTR CLA-10	CTOM-110 CTOM-15	ACT-150 CCO-150	ACT-200	ACT-350

NOTE: The transformer types listed above are accepted in all standard ratios. Insulation class, voltages, ratios and other necessary information should be specified when ordering.

Conditional List

sd

April 1979

sd - Current Transformers
Outdoor Types

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Electromagnetic Ind.</u>		
Type IK-E, 46-69 kV	971 (7/15/71)	To obtain experience.
Type UMCT, 0.6 kV	981	
Type UCT, 0.6 kV	12/16/71	
Type C03-110, 15 kV	1076	
Type C03-150, 25 kV	10/30/75	
Type C03-200, 34.5 kV		
 <u>General Electric</u>		
Type JCK-5, 15 kV	1059 2/20/75	To obtain experience.

se
April 1979

se - Voltage Transformers

<u>Outdoor Types</u>						
<u>Manufacturer</u>	<u>.6kV</u>	<u>1.2kV</u>	<u>15kV</u>	<u>25kV</u>	<u>34.5kV</u>	<u>69kV</u>
Associated Engineering	CL TL		PTT-150 SPOF-100 PTT-110	PTT-150 SPOF-150	POF-200	
Duncan	DVE-6 DVF-6					
General Electric	JVA-0 JVP-0		JVW-5 JVW-110	JVW-6 ET-150 JVT-150	ET-200 JVT-200	ET-350 JVT-350
Sangamo	T6A T7		SMP-150			
Westinghouse	EMP PXA-10	EMPL	PTOM-110M PTOM-110	PTOM-150 APT-150	APT-200	APT-350 LPT-350

NOTE: The transformer types listed above are acceptable in all standard ratios. Insulation class, voltages, ratios and other necessary information should be specified when ordering.

Conditional List
se
July 1978

se - Voltage transformers

Outdoor Types

<u>Manufacturer</u>	<u>Meeting No. & Date</u>	<u>Conditions</u>
<u>Astra</u>		
Type DB, 0.6 kV	1087	To obtain experience.
Type DA, 0.6 kV	4/1/76	
<u>Electromagnetic Industries</u>		
Type ZOF-E, 46 kV	971	To obtain experience.
Type EOF-E, 46 kV	7/15/71	
Type UT-E, 46-69 kV		
Type PO4-110, 15 kV	1076	
Type PO4-150, 25 kV	10/30/75	
Type PO4-200, 34.5 kV		
Type U-450, 0.6 kV	1080(12/23/75)	

U an - Transformers, distribution
pad-mounted, dead-front

(For underground application)

Applicable Specifications: "REA Specifications for Pad-Mounted
Transformers," U-5

<u>Manufacturer</u>	<u>Single phase</u>	<u>Three Phase</u>
Central Moloney (2,4)	"REA-LP" 25-167 kVA	
Chance (2)	"Turf Hugger-R" 15-167 kVA	"Turf Hugger-R" 75-500 kVA
Dowzer (3,4)	"METRI-PAD" 25-167 kVA	"PM3W-R" 75-500 kVA
ERMCO (2, 4)	"Low Profile" 10-75 kVA	
General Electric (2,4)	"Mini-Pad III - REA" 10-167 kVA	"Compad II - REA" 75-2500 kVA
Howard (2,4)	"HiPad REA" 10-167 kVA	"HiPad 3 REA" 45-2500 kVA
Kuhlman (2,4)	"Lo-Pak ALR" 25-167 kVA	
McGraw-Edison (2,4)	Series 20/30 REA 25-167 kVA	"REA Pad-Mount" 75-2500 kVA
NECO (2)	HMM-R, 10-50 kVA SP-R, 75-167 kVA	TP-R, 45-1000 kVA
H. K. Porter (2,4) (Delta-Star)	"Low Profile U 5-R" 25-167 kVA	"Porter U5-R3" 225-2500 kVA
RTE (2,4)	"REA Shrubline" 15-167 kVA	"REA Terra-Tran" 45-2500 kVA
Standard (3,4,5)	-	"Mini-Pad RE010" 75-300 kVA "Stan-Pad RE010" 500-1500 kVA
United (Ky. AEC) (2,4)	"Pad-Mount" 15-75 kVA	

- (1) 7.2/12.5 and 7.6/13.2 kV
- (2) 7.2/12.5, 7.6/13.2 and 14.4/24.9 kV
- (3) 7.2/12.5 and 7.6/13.2 kV (conditional listing for 14.4/24.9 kV)
- (4) Dual voltage - same as for 14.4/24.9 kV, single phase
- (5) Three-phase listing applies to 7.2/12.5 and 7.6/13.2 kV only

U an-1.2
January 1979

U an - Transformers, distribution,
pad-mounted, dead-front

(For underground application)

Applicable Specifications: REA Specifications for Pad-Mounted
Transformers - U-5

<u>Manufacturer</u>	<u>Single Phase</u>	<u>Three Phase</u>
VanTran (3,4)	"Mini Pad U5" 5-167 kVA	"VanPad III-U5" 30-2500 kVA
Wagner(Turbodyne) (2,4)	"Turfline II-R" 25-167 kVA	-
Westinghouse (2,4)	"Mini-Pak U-5" 25-167 kVA	CTP-U5, 75-500 kVA "Plazapad - U5" 750-2500 kVA

- (1) 7.2/12.5 and 7.6/13.2 kV.
- (2) 7.2/12.5, 7.6/13.2 and 14.4/24.9 kV.
- (3) 7.2/12.5 and 7.6/13.2 kV (conditional listing for 14.4/24.9 kV).
- (4) Dual voltage - same as for 14.4/24.9 kV, single phase.
- (5) Three-phase listing applies to 7.2/12.5 and 7.6/13.2 kV only.

U ax
April 1979

U ax - Cutout and Arrester, Combination
for Underground System Pole Risers

Nominal System Voltage	For 7.2/ 12.5 kV Wye	For 7.6/ 13.2 kV Wye	For 14.4/ 24.9 kV Wye
Cutout Maximum Voltage Rating	7.8 kV 1Ø	15 kV 3Ø	15 kV 1Ø and 3Ø
Application	Risers	Risers	Risers
Cutout Current Rating	100 amps	100 amps	100 amps

<u>Manufacturer</u>	<u>Catalog Numbers</u>			
Chance	T70J-2B3409	T70J-2F2409	T70J-2F2409	
General Electric	9F80	9F80	9F80	
Joslyn	J9237-P2	J9237-P2/R	J9237-P2-R	J9267-D2
McGraw-Edison	AFM300B Series	AFM300C Series	AFM300C Series	AFM301D Series
Southern States	CA Series	CA Series	CA Series	CA Series

NOTE: The units listed on this page may be used with single arresters or arresters in parallel, but must be applied in accordance with paragraph VI.A. in REA Bulletin 61-3, "Underground Rural Distribution." Other arresters listed on pages ae-1 and ae-2 may be used for underground systems when applied in accordance with this bulletin.

Cutouts used on underground riser poles should be loadbreak type or have hooks for portable load interrupters.

U cg
July 1978

U cg - Switch, air, three-pole, group-operated
for pole-mounted cable risers
(Factory Preassembled)

<u>Manufacturer</u>	<u>Mounting</u>	<u>Side Break</u> <u>Type kV</u>
Chance	Vertical	D4,D5(L)15-27
	Horizontal	D4,D5(L)15-27
S & C	Vertical	Alduti(L)15-25
	Horizontal	Alduti(L)15-25

(L) Means gas or solid material full-load interrupters are accepted and available.

NOTE: Switches with factory-assembled crossarm type bases must have nonconducting crossarm type bases, nonconducting braces, and insulated interphase and control rods.

U fw
July 1978

U fw - Secondary Tap Connector

Manufacturer

Fargo

Type or Catalog No.

GUR-75 (10 amp max. load)
GUR-750 (10 amp max. load)

U fz-1
April 1979

U fz - Transformer Connector Block, Insulated

Multiple Cable Connectors

<u>Manufacturer</u>	<u>Connection Type</u>	<u>Catalog Number</u>
Alcoa	Lug	Interchange 1 ABBD Series (Disconnectable) Use with A9 insulating boots
Alcon	Set Screw	VBTT Series with double sealing sleeve
Burndy	Lug	Stud Mole
Electrical Spec. Prod.	Lug	Type SU (Permanent)
	Lug	Types SUR and RDSR (Removable) (With Types LA and AL lugs and sleeve kits)
	Set Screw	Type SUB (Permanent)
	Set Screw	Type SUBR (Removable) (Use with sleeves)
Fargo	Bolted	GUC Series
	Set screw	GUS-200S Series
Homac	Lug	FT-95 Series with flood seal sleeve kit
	Lug	FTU 125 Series (Disconnectable) with flood seal sleeve kit
	Set Screw	UT-R Series
ITT Blackburn	Lug	SCU, with lugs and sleeves
Penn Union	Lug	Type DBAT (Permanent)
	Lug	Type DBAT-LH (Disconnectable) Use with Series DBTB, DBTBF and DBTH lug and sleeve kits
Reliable	Set Screw	15956 (Permanent) 15912-REA (Disconnectable)
Utilco	Set Screw	PTF-IN (Permanent) PTF-IN-J (Disconnectable)

NOTE: Additional insulation may be required with some of the above-listed secondary terminal blocks due to the irregularity of mating surfaces between various secondary studs being supplied by the transformer manufacturers.

U gk - Terminations, Outdoor
(with mounting hardware)*

(When ordering specify conductor size, type, whether
copper or aluminum, insulation diameter, and type
of mounting desired)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Chance</u> C552-0395 Series 15 kV (#2 thru 2/0 AWG)	1058 2/6/75	To obtain experience.
<u>Raychem</u> Thermofit HVT (15, 25 and 35 kV)	1054 11/27/74	To obtain experience.
<u>Kearney</u> 111508 Series (15 kV)	1091 5/27/76	To obtain experience.
<u>Bishop</u> SWO Kit (15, 25 & 35 kV)	1109 3/3/77	To obtain experience.
<u>G & W</u> "Slip-on Dry" 15 kV, SD-7 25 kV, SD-9	1150 11/2/78	To obtain experience.

*Mounting hardware is used to attach termination to mounting bracket
(U hd or U hj).

Conditional List

U gk(2)

April 1979

U gk - Terminations, Indoor

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Elastimold (ESNA)</u> Style 35-MS (15, 25 and 35 kV)	945 (6/11/70) 1116 (6/9/77)	To obtain experience.
<u>General Electric</u> Termi-Matic, Type A or G (15, 25 and 35 kV)	914 (3/20/69) 1083 (2/5/76)	To obtain experience.
<u>ITT Blackburn</u> Type SKD Stress Cone (15, 25 and 35 kV)	1043 6/13/74	To obtain experience.
<u>Raychem</u> Thermofit HVT (15, 25 and 35 kV)	1054 11/27/74	To obtain experience.
<u>3M</u> MT Series (15, 25 and 35 kV)	1054 (11/27/74) 1083 (2/5/76)	To obtain experience.
<u>Kearney</u> 1115 SC Series (15 and 25 kV)	1091 5/27/76	To obtain experience.
<u>Bishop</u> Stress-Wrap (15, 25 & 35 kV).	1109 3/3/77	To obtain experience.

U go
April 1979

U go - Fault Indicator
(For Construction Unit UM6-4)

<u>Manufacturer</u>	<u>Type</u>
Burndy	Series 18 and 18F (To be used on single-phase circuits only)
Dossert	FLO-40
Edison Control Corp.	Series EC-100
Fisher Pierce	Series 1514 (To be used on single-phase circuits only)
McGraw-Edison	Linam
RTE	TPR, LV, MR

U gp
April 1979

U gp - Connector blocks and splices, secondary

Watertight - for use in all locations

Manufacturer	Connection Type	Catalog Number
Alcoa	Lug	Interchange-I ABB Series Use with A-9 insulating boots
Alcon	Set screw	VPB Series
Blackburn	Lug	Series UP (With lugs and sleeves)
Burndy	Lug	URD Mole
Electrical Spec. Prod.	Lug	Type UC (8 AWG - 500 kcmil) (With LA lug and sleeve)
	Set Screw	Type UB (With sleeve) Splice Type ACL-HSH (6 AWG - 500 kcmil)
Fargo	Bolted	GU-115A (Pancake)
	Bolted	GU-215A Series
	Set screw	GU-500 Series
Homac	Lug	FS-95 Series with flood seal sleeve kit (8 AWG - 350 kcmil)
	Lug	FS 125 Series with flood seal sleeve kit (350 - 500 kcmil)
	Set Screw	UH-R Series
Kearney	Compression	HCR
	Compression	HAR
Penn Union	Lug	DBA Series with DBTB, DBTBF and DBTH Series lug and sleeve kits
Reliable	Set Screw	15903-15908, 15910 with sleeve kit (4 AWG - 350 kcmil) 15911 with sleeve kit (500-750 kcmil)
Utilco	Set Screw	Safety Sub Splice - USPA-350SS

Non-Watertight - for use in above-grade pedestals only

Fargo	Set screw	GUS-200 Series
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April 1979

U gu - Power pedestal

Refer to Drawings UK6 and UM5-5

Applicable Specifications: "REA Specifications for Secondary Power Pedestals," U-6

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>ITT Blackburn</u> Molded polyethylene with galvanized steel cover and ground lug. Catalog No. SDR-2PG	991 5/11/72	To obtain experience.
<u>Pen-Cell</u> Molded polyethylene with galvanized steel or plastic cover Catalog No. PE-20U-REA	983 1/20/72 1156 2/1/79	To obtain experience.
<u>Sonoco Products Co.</u> Duropipe (fiber) power pedestal with cast iron cover: 12", 15", 18" and 24"	836 3/10/66	To obtain experience.
<u>Burndy</u> Molded polyethylene with galvanized steel cover. Catalog No. URD20G23	997 7/27/72	To obtain experience.
<u>Reliable (Synthetic Products)</u> Molded polyethylene with galvanized steel or plastic cover. Catalog No. S-840	1026 9/27/73	To obtain experience.
<u>Fargo</u> HDPE, B-100 Series ABS, B-200 Series	1140 6/1/78	To obtain experience.
<u>Carson</u> Molded polyethylene with plastic cover Catalog Nos. 1324-13B and 1730-13B	1109 3/3/77	To obtain experience.
<u>Associated Plastics</u> Molded polyethylene with galvanized steel or plastic cover Catalog Nos. 1730-1, 3; 1324-1, 3	1113 4/28/77	To obtain experience.

Conditional List

U gu(2)

July 1978

U gu - Power Pedestal
Refer to Drawings UK6 and UM5-5

Applicable Specifications: "REA Specifications for Secondary Power
Pedestals," U-6

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Dexol</u>		
HDPE, DX-101	1140	To obtain experience.
DX-102	6/1/78	
ABS, DX-101HD		
DX-102HD		

October 1978

U hb - Cable Accessories

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>General Electric</u>		
15 kV, used with loadbreak connectors		To obtain experience.
Switch module 9U02AAA001	930(10/30/69)	
Switch module 9U02AAB001*	1133(2/16/78)	
Basic connector module 9U05 Series	930(10/30/69)	
25 kV, used with loadbreak connector		
Switch module 9U02BAA001	1016(5/10/73)	
Switch module 9U02BAB001*	1133(2/16/78)	
Insulating cap 9U01BEB001	1016(5/10/73)	
<u>RTE</u>		
15 kV, used with loadbreak connectors		To obtain experience.
No. 2603711A12 protective cap	1033(1/17/74)	
No. 2604797B01 bushing well insert*	1126 11/3/77	
No. 2625194A01 two-way bushing well insert*		
No. 2604231B01 bushing well plug		
25 kV, used with loadbreak connectors		
No. 2606591A02 protective cap	1033(1/17/74)	
No. 2604982B01M bushing well insert*	1148 9/28/78	
No. 2604975B01M two-way bushing well insert*		
35 kV, used with loadbreak connectors		
No. 2606630A01 protective cap	1048(8/22/74)	

*NOTE: Asterisk indicates single or three phase. Other bushing plugs
for use with loadbreak connectors are single phase only.

Conditional List
U hb(2.1)
April 1979

U hb - Cable Accessories

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Kearney</u> 25 kV, used with loadbreak connectors No. 112500 bushing plug*	966 5/6/71	To obtain experience.
<u>Reliable</u> Concentric neutral bonding clamp (Nos. 2329 & 2330)	1037 3/21/74	1. To obtain experience. 2. Only for bonding of anodes or other metals to the neutrals of existing cable installations. 3. Not to be used to connect neutral to grounding electrodes.
<u>Harco</u> URD cable clamp	1114 5/12/77	Same as above

*NOTE: Asterisk indicates single or three phase. Other bushing plugs
for use with loadbreak connectors are single phase only.

July 1978

U hb - Cable Accessories

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

600 Ampere Continuous Current Rating

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Elastimold (ESNA)</u>		
15 kV, used with non-loadbreak connectors	1016 5/10/73	To obtain experience
600, 650 Series		
25 kV, used with non-loadbreak connectors		
K600, K650 Series		
35 kV, used with non-loadbreak connectors	1064 5/1/75	
750LR Series		
<u>RTE</u>		
15 kV, VBT Tee connector	1126	To obtain experience.
No. 2604360B Series	11/3/77	
15 kV, Protective cap		
No. 2625041A01		
<u>ITT Blackburn</u>		
15 kV, used with non-loadbreak connectors	1131 1/19/78	To obtain experience.
Types 6B and 65B		
25 kV, used with non-loadbreak connectors		
Types 6C and 65C		

U hc
April 1979

U hc - Cable Supports
15 and 25 kV

<u>Manufacturer</u>	<u>Catalog Number</u>	<u>Grip Dia. Range (inches)</u>
Kellems	022-16-011	0.81 to 0.94
	022-16-012	0.87 to 1.00
	022-16-013	0.94 to 1.06
	022-16-014	1.00 to 1.18
	022-16-015	1.06 to 1.25
	022-01-018	1.25 to 1.50
Lewis	A-U-SW-18	0.75 to 1.25
	A-U-SW-1.12	1.12 to 1.62
Economy Cable Grip	SPJ087-U	0.87 to 1.00
	SPJ100-U	1.00 to 1.12
	SPJ113-U	1.12 to 1.25
	SPC125-S-U	1.25 to 1.50
Fargo	GJ-854	0.718 to 0.919
	GJ-855	0.920 to 1.12
	GJ-856	1.12 to 1.50
Aluma-Form	CS-800 Series	0.75 to 2.0
Woodhead	36170 (SC14)	0.81 to 0.95
	36171 (SC15)	0.89 to 1.01
	36172 (SC16)	0.94 to 1.07
	36173 (SC17)	1.00 to 1.19
	36174 (SC18)	1.06 to 1.26
	35034 (SC125U)	1.25 to 1.50
Slater	FCSD 14	0.82 to 0.95
	FCSD 15	0.88 to 1.00
	FCSD 16	0.95 to 1.06
	FCSD 17	1.01 to 1.19
	FCSD 18	1.07 to 1.26
	FC125-U	1.25 to 1.50

U hd
July 1978

U hd - Brackets, pothead mounting, and
Brackets, combination pothead and
arrester mounting

Manufacturer

Single Phase

Three Phase

Aluma-Form

TB-EMB-1-2PA

TB-EMB-1-6 PA

April 1979

U he - Enclosures, Sectionalizing Equipment

<u>Manufacturer</u>	<u>Meeting No. and Date</u> <u>7.2/12.5 kV</u>	<u>Conditions</u>
<u>Durham</u>		
Model FTSP-CL, single-phase pad-mounted, 1 thru 4 fused taps	1020 7/5/73	To obtain experience.
Model FTSP-CL3, three-phase pad-mounted, 1 and 2 fused taps	1077 11/13/75	To obtain experience.
<u>Electrical Equipment</u>		
FTDF-P Series, single and three-phase, one and two fused taps, pad-mounted	1040 5/2/74	To obtain experience.
*GGCL-P Series, single and three-phase, pad-mounted	1047 8/8/74	To obtain experience.
<u>Elliott</u>		
Type EPMR, single and three-phase, pad-mounted	993 (6/8/72) 1007 (1/4/73) 1009 (2/1/73) 1010 (2/15/73)	To obtain experience.
<u>Gerard</u>		
Mod-Brk 6-115 and 6-315 Series single and three-phase, pad-mounted	1047 8/8/74	To obtain experience.
<u>Powercon</u>		
Type PMF, single-phase pad-mounted	981 12/16/71	To obtain experience.
Type PMF-8.3, three-phase pad-mounted	998 8/17/72	
<u>Inter-Alloys</u>		
Uni-Versal single- and three-phase pad-mount fusible switchgear and loadbreak switches Series UV-FL	1133 2/16/78	To obtain experience.

*Furnished with current limiting fuses.

NOTE 1: Enclosures on this page must comply with the dead-front requirements of REA Spec. U-7.

NOTE 2: Single-pole switching of three-phase underground circuits may cause ferroresonance. Refer to REA Bulletin 61-3.

April 1979

U he - Enclosures, Sectionalizing Equipment
(600 amp.)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>S & C</u>		
Mark III, Model PMH (with option G-5) 15-25 kV, 600 amp., three-phase switching and 200 amp. single-pole switching	1112 4/14/77	To obtain experience.
<u>General Electric</u>		
Series PSB (pad-mounted) and SSB (submersible) three-phase switching equipment, 200 or 600 amp., 15 or 27 kV	1022 8/2/73	To obtain experience.
<u>Trayer</u>		
800 Series, pad-mounted three phase vacuum switching equipment, 200 and 600 amps., 15-25 kV with or without fusing	1160 3/29/79	To obtain experience.
501 submerisble vacuum fuse enclosure, deadfront 200 or 600 amp., 15-25 kV	1160 3/29/79	
Type SSA (submersible, fused and unfused) 200 and 600 amp., 15-25 kV	1034 1/31/74	
<u>Chance</u>		
Type LVS (submersible and pad- mounted) single phase and three phase, vacuum switching equipment, fused or unfused, 200 or 600 amp., 15 kV	1074 9/25/75 1108 2/17/77	To obtain experience.
Type EVS vacuum switching equip- ment, single phase or three phase, submerisble or pad- mounted, 200 or 600 amps., 15 kV	1074 9/25/75 1108 2/17/77	

NOTE 1: Enclosures on this page must comply with the deadfront requirements of REA Specification U-7.

NOTE 2: Single-pole switching of three-phase underground circuits may cause ferroresonance. Refer to REA Bulletin 61-3.

Conditional List
U he(3.1)
July 1978

U he - Enclosures, Sectionalizing Equipment
(600 amp.)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>RTE</u> Type LBS, single and three phase, pad-mounted 15 kV	1095 8/11/76	To obtain experience.
<u>ITT Blackburn</u> Type SG6 (submersible) three-phase switching equipment, 600 amp., 15 or 25 kV	1112 4/14/77	To obtain experience.

NOTE 1. Enclosures on this page must comply with the deadfront requirements of REA Spec, U-7.

NOTE 2: Single-pole switching of three-phase underground circuits may cause ferro-resonance. Refer to REA Bulletin 61-3.

U hp - Terminations, Elbow*

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Burndy</u>		
15 kV, Loadbreak		
LBT 112 (without test point)	1144	To obtain experience.
LBT 112-T (with test point)	8/3/78	
15 kV, Fused	969	
SPF-TPK	6/17/71	
25 kV, Non-loadbreak	1145	
LBT 252 (without test point)	8/17/78	
LBT 252-T (with test point)		
<u>Elastimold (ESNA)</u>		
15 kV	945	To obtain experience.
Style 154-LR (non-loadbreak with voltage test point)	6/11/70	
Style 163-LR (Loadbreak without voltage test point)		
Style 164-LR (Loadbreak with voltage test point)		
25 kV	945	
Style K-154-LR (non-loadbreak with voltage test point)	6/11/70	
Style 271-LR (Loadbreak without voltage test point)	1068	
Style 272-LR (Loadbreak with voltage test point)	6/26/75	
35 kV		
Style 354-LR (non-loadbreak with voltage test point)	1064	
	5/1/75	

*NOTE: Non-loadbreak devices require that connections be made in non-energized conditions only.

For application of loadbreak elbows on three-phase systems, refer to
REA Bulletin 61-15 dated June 1974.

Conditional List
U hp(2)
April 1979

U hp - Terminations, Elbow*

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>General Electric</u>		
15 kV, Loadbreak	930	To obtain experience.
Elbow connector module	10/30/69	
9U01 Series		
25 kV	1016	
9U01BAA Series (Loadbreak	5/10/73	
with voltage test point)		
9U01BBA Series (Loadbreak		
without voltage test point)		
<u>ITT Blackburn</u>		
15 kV, Loadbreak	981(12/16/71)	To obtain experience.
T2B (without test		
point)		
T2BT (with test point)	981(12/16/71)	
15 kV, Non-loadbreak	1037	
TN2BT (with test point)	3/21/74	
25 kV, Non-loadbreak		
T2CT (with test point)		
TN2CT (with test point)		

*NOTE: Non-loadbreak devices require that connections be made in non-energized conditions only.

For application of loadbreak elbows on three-phase systems, refer to
REA Bulletin 61-15 dated June 1974.

U hq - Terminations, Multipoint

Use with Loadbreak Connectors

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Elastimold (ESNA)</u>		
Cable tap	921	To obtain experience.
1601-CT	6/26/69	
Single Cable Tap		
1601-SCT		
15 kV		
2-way bushing, 163J2*	1068 (6/26/75)	
3-way bushing, 163J3*	1068 (6/26/75)	
3-way bushing, 1601-J3	921 (6/26/69)	
4-way bushing, 163J4*	1068 (6/26/75)	
4-way bushing, 1601-J4	945 (6/11/70)	
<u>RTE</u>		
LBC-2, 2-way bushing, 15 kV	924	To obtain experience.
2600730C04 - single phase	8/7/66	
2604883B01 - three phase		
LBC-3, 3-way bushing, 15 kV	1126	
2600730C08 - single phase	11/3/77	
2604883B02 - three phase		
LBC-4, 4-way bushing, 15 kV		
2600730C12 - single phase		
2604883B03 - three phase		
LBC-2, 2-way bushing, 25 kV	1148	
2604954B01 - three phase	9/28/78	
LBC-3, 3-way bushing, 25 kV		
2604954B02 - three phase		
LBC-4, 4-way bushing, 25 kV		
260495B03 - three phase		
<u>General Electric</u>		
15 kV*		
2-way bushing 9U07A--2-0	1131	To obtain experience.
3-way bushing 9U07A--3-0	1/19/78	
4-way bushing 9U07A--4-0	1158 (3/1/79)	
25 kV*	1016	
2-way bushing 9U07B--2-0	5/10/73	
3-way bushing 9U07B--3-0	1158	
4-way bushing 9U07B--4-0	3/1/79	
<u>ITT Blackburn</u>		
J2BA (2, 3, 4-way) 15 kV	1110	To obtain experience.
JJ2BA* (2, 3, 4-way) 15 kV	3/17/77	

*NOTE: Asterisk indicates single or three phase. Other terminations for
use with loadbreak connectors are single phase only.

Conditional List

U hq(3)

July 1978

U hq - Terminations, Multipoint

Use With Non-loadbreak Connectors

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Elastimold (ESNA)</u>		
Style 150-T, T-Tap (15 kV)	873 7/27/67	To obtain experience.
Style K-150-T, T-Tap (25 kV)	921 6/26/69	
<u>ITT Blackburn</u>		
J2CA (2, 3, 4-way) 25 kV	1110 3/17/77	To obtain experience.
<u>RTE</u>		
VBJ-2, 2-way bushing, 15 kV, 2604670B01	1126 11/3/77	To obtain experience.
VBJ-3, 3-way bushing, 15 kV, 2604670B02		
VBJ-4, 4-way bushing, 15 kV, 2604670B03		

U hv - Cable, underground

600 volt multi-conductor cable

Applicable Specification: REA Specification U-2
 Conductor : Copper, #4 AWG and larger
 Aluminum, #2 AWG and larger
 Insulation : Cross-linked polyethylene (XLPE)

Manufacturer	Type Insulation	Type Conductor	Cable Configuration
Alcan	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Alcoa	XLPE	Aluminum	3 insulated conductors triplexed
American Electrical	XLPE	Aluminum	3 insulated conductors triplexed
Anaconda	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Cyprus (Rome)	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Essex (Paranite)	XLPE	Copper or Aluminum	3 insulated conductors triplexed
General Electric	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Hatfield	XLPE	Copper	3 insulated conductors triplexed
Kaiser	XLPE	Aluminum	3 insulated conductors triplexed
Okonite	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Pirelli	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Reynolds	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Southwire	XLPE	Copper or Aluminum	3 insulated conductors triplexed
Triangle	XLPE	Copper or Aluminum	3 insulated conductors triplexed

NOTE: The above cable may be supplied with UL label for Type USE.

Conditional List
U hv(1)
April 1979

U hv - Cable, Underground
(15 or 25 kV cable)

TREE RETARDANT

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Reynolds</u>		
Reynotree HMW	1114(5/12/77)	To obtain experience.
	1134(3/2/78)	
DFDA-6202 HMW	1151(11/16/78)	
<u>Alcoa</u>		
Treban 100 HMW	1144(8/3/78)	To obtain experience.
DFDA-6202 HMW	1148(9/28/78)	
<u>Cyprus</u>		
Treban 100 HMW	1146(8/31/78)	To obtain experience.
DFDA-6202 HMW	1155(1/18/79)	
<u>Essex</u>		
Treban 100 HMW	1146(8/31/78)	To obtain experience.
<u>Southwire</u>		
Treban 100 HMW	1146(8/31/78)	To obtain experience.
DFDA-6202 HMW	1152(12/7/78)	
<u>Triangle</u>		
Treban 100 HMW	1146(8/31/78)	To obtain experience.
DFDA-6202 HMW	1151(11/16/78)	
<u>Hendrix</u>		
DFDA-6202 HMW	1151(11/16/78)	To obtain experience.
<u>Pirelli</u>		
Treban 100 HMW	1152(12/7/78)	To obtain experience.
DFDA-6202 HMW	1152(12/7/78)	

Conditional List

U hy(1)

April 1979

U hy - Splice, Underground, Permanent

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>AMP</u>		
"Ampact Splice" (35 kV)	1126(11/3/77)	To obtain experience.
<u>Burndy</u>		
Type PMS162-K (15 kV)	981(12/16/71)	To obtain experience.
<u>Elastimold (ESNA)</u>		
Style 1500S, straight splice, through #1/0 (15 kV)	1135 3/23/78	To obtain experience.
Style 25-S, straight splice, #2/0 through #4/0 (15 kV)	1135(3/23/78) 873 7/27/67	
Style 25-Y, Y-splice (15 kV)	921 6/26/69	
Style K-25-S, straight splice (25 kV)		
Style K-25-Y, Y-splice (25 kV)		
Style M-250-S, straight splice (35 kV)	1134 3/2/78	
<u>General Electric</u>		
"Uni-Matic" (15 & 25 kV) (max. cable size 2/0)	977 10/14/71	To obtain experience.
<u>ITT Blackburn</u>		
Type S4B (15 kV)	1160	To obtain experience.
Type S4C (25 kV)	3/29/79	
<u>3M</u>		
"Quick-Splice"		
5400 Series (15 kV)	969(6/17/71)	To obtain experience.
(#2 AWG thru 750 kcmil)	1024(8/30/73)	
5420 Series (25 kV)	1032(12/20/73)	

Conditional List

U hy(1.1)

July 1978

U hy - Splice, Underground, Permanent

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>RTE</u>		
15 kV - 2606780A Series straight splice	1122 9/8/77	To obtain experience.
25 kV - 2606825A Series straight splice		
35 kV - 2603934B Series straight splice	1058 2/6/75	
15 kV - 2602429B Series Y-splice	1033 1/17/77	
<u>Somerset</u>		
<u>Straight splices</u>		
Style 15 DHS (15 kV)	1014	To obtain experience.
Style 25 DHS (25 kV)	4/12/73	
Style 35 DHS (35 kV)		

U ja - Transformer Pad

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Carolina Dielectrics</u> Model 0502-1 Fiberglass Size: 40" x 44"	1000 9/14/72	To obtain experience.
<u>Chance</u> C107-0162 and C107-0171 Fiberglass Size: 40" x 44"	994 6/29/72	To obtain experience.
<u>Fiberglass Specialists</u> Molded polyethylene Size: approx. 41" x 41"	989 4/13/72	To obtain experience.
<u>Highline</u> HL-46B, Fiberglass Size: approx. 42" x 42"	989 4/13/72	To obtain experience.
<u>Plastic Structures</u> No. 40402012 Molded polyethylene Size: 40" x 40"	997 7/27/72	To obtain experience.
<u>Thermodynamics</u> Poly-Pad, PR Series* Molded polyethylene	998(8/17/72) & 1009(2/1/73)	To obtain experience.
<u>Sonoco Products</u> No. 6000383 Reinforced plastic Size: 43" x 48"	1068 6/26/75	To obtain experience.
<u>Carlton</u> Composolite - PH Series	1141 6/15/78	To obtain experience.
<u>Cyclo</u> Dwg. No. 730126-2 Molded polyethylene Size: 42" x 42"	1147 9/14/78	To obtain experience.

*Order by catalog number and size.

Conditional List
U ja(1.1)
April 1979

U ja - Transformer Pad

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Power Line Hardware</u>		
T-4242	1158	To obtain experience.
Molded polyethylene	3/1/79	
Size: 42" x 42"		
<u>Formex</u>		
Model TP-REA	1159	To obtain experience.
Molded polyethylene	3/15/79	

Conditional List
U ja(2)
July 1978

U ja - Transformer Pad (Sleeve)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Concast</u> Fibercrete modular bases	1125(10/21/77)	To obtain experience.
<u>Durham</u> UGS Series* Models A, B, C & D Steel box pad	1065 5/15/75	To obtain experience.
<u>Highline</u> Box pad HL-45A Size: L-43", W-34 $\frac{1}{2}$ ", D-32"	1002 10/12/72	To obtain experience.

*Order by catalog number and size.

Conditional List
U sd
July 1978

U sd - Current Transformers

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Sangamo</u> Current transformers, direct burial, 600 v. Type KU-6 Type K2U-6 Type GU-6 Type HU-6	940 4/2/70	To obtain experience.

U si
April 1979

U si - Anodes, Sacrificial
(Drawings UML1-1, UM-26, UM27, M2-7)

Zinc Anodes*

	<u>Pre-Packaged With Connecting Wire</u>			<u>Bare Continuous Strip (Ribbon)</u>	
	<u>5.5 kg</u> <u>(12 lbs)</u>	<u>13.6 kg</u> <u>(30 lbs)</u>	<u>27.2 kg</u> <u>(60 lbs)</u>	<u>16 mm x 22 mm</u> <u>(5/8" x 7/8")</u>	<u>13 mm x 14 mm</u> <u>(1/2" x 9/16")</u>
Federated Metals	S-12 packaged	S-30 packaged	S-60 packaged	Regular size Type II	Junior size
Harco	AZC12GJ	AZC30GJ	AZC60HJ		

Magnesium Anodes**

	<u>Standard Potential</u>			<u>High Potential</u>		
	<u>7.7 kg</u> <u>(17 lbs)</u>	<u>14.5 kg</u> <u>(32 lbs)</u>	<u>22.7 kg</u> <u>(50 lbs)</u>	<u>7.7 kg</u> <u>(17 lbs)</u>	<u>14.5 kg</u> <u>(32 lbs)</u>	<u>21.8 kg</u> <u>(48 lbs)</u>
Federated Metals	17 packaged	32 packaged	50 packaged			
Harco	AMC17J	AMC32J	AMC50J	AMC17G	AMC32G	AMC48G
Kaiser Mag.	17 Vibra Pak	32 Vibra Pak	50 Vibra Pak	17 Electromag Vibra Pak	32 Electromag Vibra Pak	50 Electromag Vibra Pak

*When ordering, specify zinc anodes that meet ASTM B418-73 Type II Composition and REA Specification DT-9, "REA Specification for Zinc Sacrificial Anodes."

**When ordering, specify magnesium anodes that meet REA Specification DT-10, "REA Specification for Magnesium Sacrificial Anodes."

WATTMETERS, RECORDING

	<u>Meeting No. and Date</u>	<u>Conditions</u>
General Electric	851 10/13/66	To obtain operating experience.
	<u>Type</u> <u>Description</u>	<u>Group*</u>
	CH-11 3Ø watt-var recroder, ink or inkless, portable, motor or clock	II
	CF-11 3Ø watt-var recorder, inkless, portable, motor	IV

*Refer to Part III - General Plant Items for explanation of groups.

WATTHOUR METER TEST SETS
AND ROTATING STANDARDS

	<u>Instrument</u>	<u>Type or Model</u>	<u>Group*</u>
Eastern Specialty	Current transformer field test kit	1012	II
	Meter test board	990A	I
	Meter test kit	G-50	II
General Electric	Portable standard	IB-10	II
Knopp, Inc.	Loading transformer	CL-6	II
	Watthour meter testing equipment	TE-14	I
Sangamo	Portable standard	J-33	II
		J-44	II
States Company	Watthour meter test table	HAPBL	I
	Photoelectric watthour meter tester	120	I
	Meter test kit	KFLD	II
	Loading transformer test set	CTT	I
	Demand meter test table	FDM	I

* Refer to "Part III - General Plant Items" for explanation of groups.